



Erasmus University Rotterdam – Erasmus School of Economics
Accounting and Auditing Master's Programme

Master Thesis

*Does the market respond to extended audit reports issued by publicly
traded companies in the Netherlands?*

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*The content of this thesis is the sole responsibility of the author and does not
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Abstract

As a result of the regulators in the audit profession issuing new requirements over audit reporting, the extended audit report has become mandatory for public entities as a step towards improving the informational value of audit reports for users of financial statements. A key part of the regulatory update is the inclusion of additional disclosures, primarily key audit matters. Publicly traded firms in the Netherlands have been subject to the extended audit report regulation since 2014. This thesis investigates the response of the market to Dutch public firms issuing extended audit reports in the period 2014 to 2020, including five years preceding the change when a traditional audit report was issued. The only significant effect to extended audit reports as a whole is seen in the investment activity measured by trading volume. Further, results show that the regulatory change does not result in a significant investor reaction to the contents of disclosures in key audit matters included in the extended audit report. Overall, results indicate that the key audit matters do not contain information new to investors.

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1. Introduction

During its long history, the audit report has kept a concise form, its value mainly reduced to one sentence expressing the auditor's opinion over financial statements (Carmichael & Winters, 1982). The audit report is a tool for the principals to obtain assurance over the information disclosed by the agent in the setting of the agency theory. However, in its traditional format, the audit report has been found to convey a largely symbolic value (Church, et al., 2008).

The traditional audit report does not include information about the audit process or the firm. In a few cases, explanatory language from the auditor may be included through emphasis of matter or other matter paragraphs as part of the unqualified audit opinion, which has presented the only opportunity for the auditor to convey information directly to report readers. The limited information in the audit report increases concerns over its credibility. This gives rise to a gap between the public's expectation over the auditor's professional responsibilities and actual audit work (expectation gap), as well as a gap between the public's information needs and the disclosed in the audit report (information gap).

Experimental studies ((Mock, et al., 2013), (Vanstraelen, et al., 2012)) and consultations initiated by regulators have mainly focused on information needs of the readers of financial statements. Their findings indicate that stakeholders desire firm-specific disclosures, particularly related to high risks areas, significant transactions, and accounting practices.

In response to these concerns, IAASB has issued a new audit standard – ISA 701, attempting to enhance the informational value of the audit report, effective from 2016. This updated regulation posits that auditors of public firms are required to include more extensive disclosures in their audit reports – leading to the extended audit report. One of these disclosures are key audit matters (KAMs) – matters which require significant attention during the audit and have been communicated to those charged with governance. In the Netherlands, the local standard setter for the accounting profession has instituted the requirement for the extended audit report starting from 2014.

The introduction of this regulation has prompted the following research question: *Does the market respond to extended audit reports issued by publicly traded companies in the Netherlands?* This study aims to examine whether investors in Dutch public firms – an important stakeholder group for the financial statements and audit reports – respond to the extended audit report and disclosures therein, by applying archival research. Previous studies

in this body of research have applied an experimental approach and the few archival studies have focused on the UK market with a limited sample of few years following the regulation update.

The research question has evolved into three hypotheses in the following directions: (1) market response to the extended audit report, (2) to the contents of the KAMs in extended audit reports and (3) to changes in the reported KAMs. First, the market reaction to the issuance of the extended audit report is examined on a sample of 65 publicly traded Dutch firms (720 firm-year observations) in the period of 2008-2020 which contains the comparative traditional audit report until 2014. Next, the market reaction to KAM contents – such as number of KAMs, length of the disclosures and type (generic and specific) – is studied on a sample of 80 firms (yielding 462 firm-year observations). Lastly, the first year of the extended audit report is omitted to examine the market reaction to changes in the reporting pattern of KAMs. This still leaves a considerable sample size of 77 firms (382 firm year observations), providing an opportunity to examine the reaction of investors to any KAMs reported for the first time or alternatively, those which are no longer reported. The KAM data for the independent variables is manually collected from audit reports. Two proxies are used to operationalize market reaction: cumulative abnormal returns and abnormal trading volumes in the 5-day window (-1 day; +3 days) around the date of publishing the annual report including the extended audit report. These proxies are frequently used in financial accounting literature to capture information content which is expected to affect the investment activity (Beaver, 1968).

The first hypothesis yields significant results when abnormal trading volume is used to measure market response to issuing an extended audit report. This finding is also consistent, however weaker, when the sample firms are separated into subgroups to attempt separating the confounding event of the earnings announcement. These results suggest that the extended audit report does contain valuable information for investors, however significant portion of this information is already known in advance of the issuance of the audit report.

Looking at the content characteristics, no evidence was found to indicate a significant market reaction to the length, number, or type (generic or specific) of the KAMs. It is likely that generic KAMs are already expected by investors, as they relate to typical financial accounting complexities such as revenue recognition and goodwill valuation. It also suggest that specific KAMs – often associated with significant events such as mergers/acquisitions or litigations and claims – are already known to investors as communicated directly by management or the board through other information channels (news, earnings calls, periodic reports). These

findings corroborate similar studies performed in the UK sample of firms who are also early adopters of the extended audit report regulation ((Gutierrez, et al., 2018), (Lennox, et al., 2021)).

Generally, same items are identified as key audit matters and continue to be reported for a firm year after year (Mazars, 2018). The results do not indicate any significant market reaction to changes in KAMs.

As evident from the interpretation of results, the study is limited by the nature of event studies where confounding events are difficult to avoid. This is particularly relevant for audit reports normally published at the same as annual reports, which contain extensive disclosures. The second limitation comes from the aforementioned nature of the disclosed KAMs. As most KAMs reported for the first time relate to new events, these are likely to already be known by the investors by the time the audit report is issued.

This study provides relevant information about the effects of the extended audit report regulation on investors in the Dutch market. In contrast to the experimental studies on the value of audit reports to readers of financial statement ((Christensen, et al., 2014), (Köhler, et al., 2020), (Sirois, et al., 2018)), which do not find any conclusive results, this study applies an archival research method. Therefore, with the use of an extensive sample of company year observations, it adds to the body of archival research on KAMs which is currently centered mostly Anglo-Saxon setting, primarily UK and New Zealand ((Lennox, et al., 2021), (Reid, et al., 2015), (Gutierrez, et al., 2018), (Almulla & Bradbury, 2018)). Despite finding no significant market reaction to KAM disclosures, this paper contributes to the discussion around the value of audit reporting in the Netherlands. Particularly, it suggest a previously unexplored research avenue – examining how different Dutch stakeholders, including investors, perceive KAM disclosures through an experimental setting.

The rest of the paper is structured as follows: first, the theoretical background is introduced where key concepts are elaborated in detail, such as the existence of the expectation and the information gap in the context of the audit report, the new IAASB regulation over audit report, as well as local audit regulation in the Netherlands. Next, a summary of the existing literature on audit disclosures, including they audit matters is included. These set the base for the development of hypotheses, followed by how these were operationalized and executed. Lastly, results are discussed, considering limitations and implications for research.

2. Theoretical Background

2.1 Audit in the Context of the Agency Theory

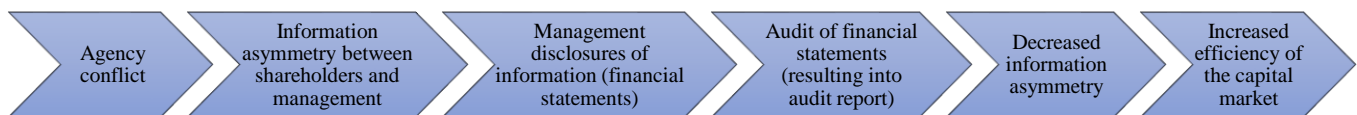
The industrial advancement in the 19th century which prompted economic growth has led to increased separation between ownership and management. With this separation, agency conflicts became more probable. These arise from the relationship between the principal (shareholders, owners of a firm) and the agent (management) employed to make decisions on behalf of the principal. Herein, situations occur when the agent and the principal have conflicting goals which leads them to act in a self-serving way (Eisenhardt, 1989).

For example, management may be inclined to manipulate earnings in order to achieve targets for performance bonuses or to inflate returns in the short-term without considerations for long-term strategic goals of the company. The latter would be the in interest of the shareholders. Therefore, shareholders attempt to increase their monitoring of management activities to address the potential agency conflicts through a variety of methods. These include audits (internal and external), budgeting and long-term based compensation schemes (Jensen & Meckling, 1976). Exploring the audit history in UK and US firms past centuries, Watts and Zimmerman (1983) find evidence that audits are efficient in their role of monitoring firm performance by reducing opportunistic behaviors of management.

This introduces another key concept in the agency theory – the information asymmetry between the management and shareholders. Within the agent/principal relationship, the management is expected to be involved in daily operations of the firm, therefore possessing vast information about its financial position and performance. Managers are also incentivized to obtain investments and also have the ability to manipulate the value of the firm. This imposes a challenge to the shareholder in their assessment of the investment in the firm from an outside perspective, leading to the risk of choosing an overvalued investment opportunity. Management shares information through financial reports (based on mandatory reporting standards such as IFRS or US GAAP), as well as through voluntary disclosures. A review of disclosure literature by Healy and Palepu (2001) identifies that the financial reports containing accounting information contain value-relevant information. They also find that information intermediaries (auditors, financial analysts, rating agencies) provide further credibility to the disclosures of management, as such reducing information asymmetry. In an environment with reduced information asymmetry, firms have easier access to capital, leading to more active trading on the stock market (Leuz & Verrecchia, 2000).

To summarize, the agency theory provides a context for the role of the audit in the capital markets – as illustrated in *Figure 1*. Auditors are information intermediaries who lend credibility to the disclosures made by management, thereby reducing information asymmetry and enabling more efficient capital markets. In the following chapter, the audit report is examined.

Figure 1. Audit in the Context of the Agency Theory



2.2 The Audit Report

2.2.1 The Traditional Audit Report

The audit report is the main means of communication between the auditor and the public at large (including shareholders). Despite its concise form, it represents the conclusion of a lengthy and complex audit process. The key part of the audit report is the opinion expressed by the external auditor over the financial statements.

Like the audit profession, the audit report has had a long-standing history and was mainly used to succinctly convey the audit opinion (Carmichael & Winters, 1982). As is often the case, large economic crises give rise to increased and more stringent regulation. Among the regulation instated subsequently to the Great Depression of the 1930's, a standardized format for the audit report was adopted with an opinion paragraph which remains familiar until today.

Presently, the form of the audit report is prescribed by standard setters like The International Auditing and Assurance Standards Board (IAASB) and The Public Company Oversight Board (PCAOB) in the US. The 'traditional' audit report is a preset of several paragraphs, which includes the scope of work, responsibilities of the management and the auditor over financial statements, the audit opinion, and lastly any applicable regulations. Overall, the rigid structure of the audit report, largely containing boilerplate language (besides the name of the auditor and company), compels users of the audited financial statements to disregard the entirety of the audit report and focus on the audit opinion (Gray, et al., 2011).

Auditing standards (ISA 700 (2015) and AS 3101 (2017)) differentiate four types of audit opinions:

1. Unqualified opinion: financial statements are prepared in accordance with the applicable financial reporting framework and are free of material misstatements. Within an unqualified report, the auditor may include some explanatory language, highlighting certain circumstances of note to the readers of financial statements – through an emphasis of matter or other matter paragraph). This is also referred to as a ‘clean’ audit opinion;
2. Qualified opinion: financial statements contain material misstatements of a specific item (account, disclosure, event) or the auditor has experienced a limitation in scope;
3. Adverse opinion: financial statements contain material and pervasive misstatements. Pervasiveness reflects misstatements which cannot be confined to one specific elements of the financial statements or affect a significant part of these;
4. Disclaimer of opinion: the auditor has not been able to obtain appropriate audit evidence and believes that potential misstatements are both material and pervasive.

Following from the theoretical background of [Section 2.1](#), management is incentivized to obtain an unqualified opinion over the financial statements, which would increase credibility in their disclosures. In practice, virtually all public companies receive an unqualified opinion on their financial statements (Czerney, et al., 2014). As such, the audit report has taken on a symbolic value for the public, as concluded by Church et al. (2008) in a review study.

However, DeFond & Zhang (2014) emphasize the difficulty of empirically measuring the value of auditing. According to their review study, existing audit research approaches the value of audit from two perspectives: (1) comparisons between unaudited and audited financial information and (2) direct information communicated by auditors. The first perspective is limited and yields ungeneralizable results. The second research avenue examines the effect of direct information from auditors to users, namely going concern opinions, auditor changes and internal control opinions. Overall, DeFond & Zhang (2014) find that audit has a value for investors and is captured by market reaction (measured by impact of equity cost of capital, cost of debt and cumulative abnormal returns). The studies reviewed are mainly related to infrequent events, again making it difficult to generalize. This is in part due to the prevalence of clean audit opinions and the standardization of the audit report format, which easily enables investors to identify audit reports which deviate from the norm (Church, et al., 2008) – such as going concern opinions.

As explained above, unqualified audit opinions may contain some explanatory language through an emphasis of matter paragraph or other matter paragraphs – ISA 706 (2015). This enables the auditor to draw the attention of the report reader to any matter considered essential in understanding the financial statements. Czerney et al. (2014) posit that explanatory language (their term for an emphasis of matter paragraph) indicates auditor’s ‘private information about financial misstatement risk’. They ultimately conclude on a significant association between audit reports with explanatory language and financial misstatement risk (measured by restatement of financial statements). In a later study, Czerney (2019) also examine the market response to the explanatory language, using abnormal returns and abnormal trading volumes as proxies. They find no investor response, due to information disclosed by the auditor being already known through other sources, as well as the lack of understanding of the explanatory language.

Overall, the literature on the value of the traditional audit report is divided. There are indications that the audit report does have value, albeit symbolic. When it comes to the information content, unexpected disclosures in the audit report may lead to market responses.

2.2.2 Expectation and Information Gaps

Another consequence of the prevalence of unqualified opinions is the diminished value of the audit for enhancing the credibility of financial statements. The value of the audit is called into question, especially in the wake of large financial scandals. For example in recent cases such as Wirecard and Carillon, the companies have received a clean audit opinion right before their collapse. This has highlighted a gap between what the public expects from an audit and what an audit actually entails – defined as the expectation gap (IAASB, 2011). The expectation gap is one of the crucial dilemmas in the audit profession and has been on the agenda of regulators for many years.

An expectation gap arises when the users of the financial statements have different expectation from the audit, compared to the ‘reality of what an audit is’ (IAASB, 2011).

In their review of the literature on the expectation gap in auditing, Koh and Woo (1998) summarize the potential sources of the gap. They find that the expectation gap is quite universal across geographies (although most papers focus on questionnaire respondents from the Anglo-Saxon economic model – US, UK, Australia, New Zealand). Further, the authors remark that the largest contributors to the expectation gap are the perceptions of financial statement users

over (1) the responsibility of auditors for fraud prevention, (2) the level of assurance provided with an audit and (3) the overall responsibilities of the auditor for the financial statements.

Several methods have been proposed in order to address the audit expectation gap. One of these is the expanded audit report – this entails the enhancement of the wording of the audit report without practical changes in the audit process (Innes, et al., 1997). Another method proposed is the education of users. The unsophisticated and sophisticated (educated, professional) investors have different perceptions of the audit, leading to differences in the expectation gap. These measures largely shift the role of closing the audit expectation gap to the public (Humphrey, et al., 1992), whereas a change in the auditor’s professional responsibilities and the audit process would be a more direct method of addressing the expectation gap, however making audits unpractical and costly.

Since the review of Koh and Woo (1998), several regulatory changes occurred with an effort of aligning the perceptions of users to the role of the auditor. IAASB and PCAOB have implemented several changes to the format of the audit report – ISA 700 (2015) and AS 3101 (2017) in terms of outlining a more precise split between auditor and management responsibilities.

More recent studies which incorporate these changes to the audit report, maintain that the audit expectation gap persists. Gold et al. (2012) set their experimental study on a group of German participants – auditors, financial analysts (sophisticated investors), and students (unsophisticated investors). Their conclusions corroborate prior observations. A significant gap persists in the users’ perceptions of auditor’s responsibilities over financial statements. It is noteworthy that both auditor and user participants highly rated the management responsibility over financial statements. Similar findings regarding the persistence of an expectation gap come from a Dutch-based study (Litjens, et al., 2015).

Overall, the two recent studies find that insufficient relevant information is provided to the users with the traditional audit report, despite changes to its wording and format. Authors note that investors would benefit from company-specific tailored reports, with information regarding the audit process.

Both these findings, as well as consultations initiated by regulators, point to the existence of an information gap between the information needs of financial statement users and the information provided in the traditional audit report. IAASB (2011) defines the information gap

as users calling for additional information which they believe is available and could ‘assist them in assessing the financial condition and performance of the entity’.

Through interviews with auditors and users, Vanstraelen et al. (2012) offer an audit reporting model to reduce the information gap between auditors and users. They posit that users have precise information needs, not necessarily needing more information. Specifically, users expect the auditors to disclose key areas of risk, the quality of the internal control system, accounting practices and management estimates.

Later, Mock et al. (2013) carry out a synthesis of current research on the audit report model through the lens of the information gap. Their findings are quite similar with the study of Vanstraelen et al. (2012). Stakeholders value the audit report but desire more entity-specific information like application of accounting principles and risks, as well as audit process, materiality, and level of assurance.

While the previous two studies provide their findings from a European and global context, Carcello (2012) undertake parallel research for the US environment among senior investment professionals. They come to comparable conclusions, namely investors desire more information on management estimates, high-risk areas, unusual significant transaction and lastly, accounting practices.

To summarize, the expectation gap has been a recurring topic for accounting research, as well as a topic on the agenda of regulators for decades. Two main directions were proposed to address the expectation gap: reforms in the audit reporting and reforms to the audit itself. While there are efforts from regulators to increase the audit quality and other aspects of the audit profession, their response towards the expectation gap has largely been focused on the audit reporting. This leads to another concept related to information disclosure: the information gap. Where reforms to the audit process tackle the expectation gap, reforms to audit reporting address the information gap between information disclosed in the auditor report and the information needs of its users. The information needs of the users of financial statements diverge from what the auditor provides in the audit report. Several methods are proposed for reducing the information gap through enhancements of the content of the audit report with the goal to increase the value of the audit report to users. These are consistent in both international and US studies.

2.2.3 Regulation Change – The Extended Audit Report

Stemming from the conceptual framework set up in the previous section, it is evident that an information gap exists between users and auditors and that there is a certain consensus with regards to the users' information needs.

Standard setters like IAASB and PCAOB (individually) have launched a process to address these concerns and provide a new form of the audit report. After an extensive regulatory process, with inquiries to the public through focus groups and questionnaires, IAASB issued a new audit standard *ISA 701 – Communicating Key Audit Matters in the Independent Auditor's Report (2015)*. The highlight of this new standard is the new disclosure requirement for the audit report with the ultimate objective of enhancing the value and relevance of the audit report.

Starting from the financial year 2016, the auditor is required to include key audit matters (KAMs) in all unqualified reports for financial statements of listed entities. This is also referred to as the extended audit report (as opposed to the traditional audit report). According to the standard, the KAMs are matters which required significant attention during the audit and were communicated to those charged with governance. The proposed considerations for identifying KAMs are: (1) significant risk areas, (2) management estimates, especially associated with high estimation uncertainty, and (3) significant transactions.

Later, PCAOB followed with similar regulation targeted towards the US market (2017) with a distinction in the terminology, where the equivalent of KAM is the critical audit matter (CAM). This audit report standard is applicable for the financial year 2020.

At national levels, the UK and Netherlands have piloted local regulations over the extended audit report before the overarching IAASB regulation has been formalized.

In the UK, the Financial Reporting Council (FRC) has modified ISA 700 to be applied locally starting from 2013. The required disclosures in the UK version include (1) significant risks of material misstatement, (2) determination of materiality and (3) audit scope. The disclosures slightly differ from the ones proposed by IAASB, primarily with KAMs being identified as risks of material misstatement.

In the Netherlands, the Royal Netherlands Institute of Chartered Accountants (NBA, Koninklijke Nederlandse Beroepsorganisatie van Accountants) has released the Dutch ISA 702N (2014) as a predecessor to ISA 701 of IAASB. The standard took effect for all listed

entities starting from financial year 2014. Overall, the Dutch standards follows the version of IAASB in terms of disclosure content, with the addition of materiality determination. A number of companies already took part in the pilot of the regulation for the financial year 2013, after which PWC reported on these first results. The PWC report (2014) summarizes the KAM disclosures with most prevalent being taxation, goodwill valuation and acquisitions or disposal. Further, it confirms the increased value of the extended audit report from enhanced disclosures.

At first glance, it appears that the new standard over the extended audit report does address the information gaps highlighted in accounting literature. Further, although some changes to the audit report format are made, the most significant additions – KAMs – remain at the discretion of the auditor in terms of content. Considering prior research on the value of audit, it remains difficult to predict to what extent KAMs will affect the value of the audit. The next chapter includes a review of the literature published so far on the extended audit report with a focus on value of KAMs.

3. Literature Review on Key Audit Matters

Shortly after the introduction of the regulation over the extended audit report, new area of research has emerged which investigates the effects of Key Audit Matters.

The research encompasses both experimental designs, as well as archival studies with the latter still fairly limited due to the scarcity of archival data. The focus areas of the KAM research revolves around KAM effects on users of financial statements and audit quality, which are also among the primarily objectives of IAASB for introducing the ISA 701: enhancing the quality, relevance, and value of auditor reporting (IAASB, 2011). Other studies follow themes from traditional audit research, such as effects of KAMs on audit fees, auditor liability and financial reporting behavior.

This section includes a summary of highlights from the existing body of literature, with a specific focus on the most pertinent studies related to the research of this paper, namely the effects of KAMs on individual investors and the market.

3.1 Market Response to KAMs

3.1.1 Experimental Studies

Earlier studies examining the effect of KAMs on investors are largely based on experimental settings and were conducted both before the regulation came into effect – as a response to the regulators’ seeking views on the proposal for the changes to auditor reporting – as well as after the introduction of the new auditing standards.

In their experimental study, Christensen et al. (2014) find that CAMs change the investment decision of non-professional investors, and exhibit both an information effect and a source credibility effect. Participants in the case-study experiment were more likely to stop considering the firm as an investment when receiving a CAM paragraph in addition to a management footnote disclosure, instead of a standardized audit report and the footnote (information effect). Participants who received a CAM were more likely to change their investment decision than when the same information was presented through a footnote disclosure (source credibility effect). Further, introducing a resolution statement into the wording of the CAM paragraph lessens the investor reaction to the CAM.

Another paper from Kohler et al. (2020) based on an experimental setting seeks to examine the communicative value of KAMs on both investment professionals and non-professional investors by formulating the wording of a goodwill-related KAM positively *‘Only large changes in the key assumptions used could give rise to an impairment of the goodwill balance in the future’* or negatively *‘Already small changes in the key assumptions used could give rise to an impairment of the goodwill balance in the future’* wording in a goodwill related KAM. This is achieved by asking the two participant groups to (1) assess the economic situation of the test company based on a certain scale and to (2) rate how confident they are about this assessment. The results of this experiment appear counterintuitive where professional investors assess the economic situation the test company to be better in the case of the negative formulation of the goodwill KAM. The researchers explain this observation through the trust model: with increased trust in the auditors, the investors will exhibit behaviors less sensitive to risk. In general, the study highlights that the communicative value of the KAMs affect the levels of perceived trustworthiness associate with the audit report. With regards to non-professional investors, the auditors infer that the KAM section has no communicative value.

In a later publication, Sirois et al. (2018) apply eye-tracking technology in an experimental setting in order to study the informational value of KAMs. The researchers use the information

overload theory – which occurs when information supply exceeds the capacity to process information, as outlined by Eppler & Mengis (2004) – in order to examine the signaling effect of KAMs on the users of financial statements. Specifically, the participants took the role of loan officers tasked with processing a loan application based on the audited financial statements of a company. The experiment results show that participants spend more time reading KAMs and KAM related disclosures in the notes of the financial statements; with an increase in the number of KAMs (from one to three), the focus spent on the KAM related disclosures is significantly diluted.

Overall, the study finds that KAMs have a signaling effect: KAMs direct attention of the financial statements readers to the disclosures related to the information in the KAM, whereas the non-KAM related disclosures receive significantly less attention. This indicates that KAMs could be used to manage information overload in a scenario where readers have to analyze financial statement. When it comes to the decision making of the users of financial statements, the study fails to find any significant impact of the KAMs on the outcome of the loan application process in the experiment.

Some limitations of these studies come from the fact that investor's reaction is often examined to a single KAM, whereas in practice an average of 2 to 4 KAMs are disclosed in the auditor's report (according to the archival studies (Gutierrez, et al., 2018), (Lennox, et al., 2021) summarized in the following section). The one paper which explores the investor reaction to more than one KAMs (Sirois, et al., 2018), shows that investors pay less attention per KAM. In addition, by the nature of the case-studies used in the experiment, the participants are inadvertently directed to focus their attention towards and base their analysis on specific information, whereas in practice the annual reports contain extensive non-financial information, notwithstanding other disclosures like news articles and earning calls.

While acknowledging that the studies summarized above adopt rather different experimental settings and interpret the results through distinct theories (information processing theory, trust model, information overload theory), the results generally show that KAMs possess communicative value (for professional investors), and show a potential source-credibility effect, information effect, and attention directing effect. As such, these findings support the regulators' reforms over auditor reporting.

3.1.2 Archival Studies

With the implementation of the new audit report, leading to new available data, researchers have started to examine the effect of the KAMs on the market through archival studies. Early studies use figures from the UK, where the extended audit report has become a requirement for listed companies since 2013. For example, Gutierrez et al. (2018) investigate whether the expanded audit report contains incremental information which would lead to an increase in its decision usefulness to investors in companies traded on the LSE. A difference-in-difference research design is applied where companies traded on the LSE Alternative Investment Market serve as control group, as these were not required to adopt the new auditor reporting format. Besides, the papers also examine the effects of the expanded auditor report on the audit fees and audit quality. As proxy for the market reaction, the authors use the absolute abnormal returns and abnormal trading volumes in a three-day window around the annual report release date. Gutierrez et al. (2018) do not find a statistically significant effect of the expanded auditor report on any of the independent variables considered, for which no specific interpretation is provided.

Lennox et al. (2021) further build onto the findings of the aforementioned paper by investigating *why* investors do not find the disclosures in the KAMs informative using a similar difference-in-difference model and similar proxies for investor reaction: three-day cumulative abnormal returns and abnormal trading volume. Additionally, the researchers add different dimensions of the information contained in the KAMs, such as new/unexpected KAMs, entity-level or account-level KAMs, number of KAMs, negatively worded KAMs. By examining all these aspects, Lennox et al. (2021) do not find that the disclosures in KAMs hold incremental information to investors. In line with the purpose of their study, the authors offer several explanations these findings: they confirm that the KAMs are value relevant, however the information disclosed through KAMs is already captured by the market through other disclosures such as financial statement notes or earnings calls.

Another study set in the UK (Reid, et al., 2015) *does* find that information asymmetry (measured with abnormal trading volume and abnormal bid-ask spread) is reduced by the new audit report and audit committee disclosures.

Since 2003, national audit regulations in France have prescribed the inclusion of a ‘justification of assessment’ (JOAs) in the audit report. JOAs include explanations of the assessments, procedures performed, and conclusions reached during the audit, in essence an equivalent of

KAMs. This has enabled the examination of KAMs through longitudinal data (Bédard, et al., 2018). Again, the researchers use abnormal returns and abnormal trading volume as proxies for market reaction, for which they find no significant effect. Similarly, no effect is found on audit quality or audit fees. For smaller firms operating in a weaker information environment, first time disclosure of KAMs has somewhat of an effect on market reaction.

Almulla and Bradbury (2018) provide an insight into the market reaction to KAMs from the New Zealand, where the authors find an association between KAMs and investor uncertainty, where investors already react to the risks disclosed in KAMs in the year prior to first implementation, with no reaction in the subsequent years (recurring KAMs).

Overall, archival studies provide mixed results for the effect of KAMs on market reaction measured by similar proxies – such as abnormal returns and abnormal trading volumes or related variations. Conclusions vary between studies set in the UK or other geographies.

3.2 Other Studies

In addition to the research on the effect of KAMs on individual investors and market reaction as described above, other topics centered around KAMs include the impact of the extended audit report on audit quality, auditor liability, and on the financial reporting behavior of management.

The findings related to the effect of the new audit report on the audit quality are mixed: Gutierrez et al. (2018) and Bédard et al. (2018) find no impact on audit quality (measured by abnormal accruals), whereas Reid et al. (2019) use absolute abnormal accruals and the propensity to just meet or beat analyst forecasts, and earnings response coefficients to find a considerable increase in the financial reporting quality. The results of an archival study from Andrecoivici et al. (2020), using the content of disclosures in the notes to financial statements and KAMs, points to an improved corporate disclosure when a risk is identified in the extended audit report. In an experimental setting, Gold et al. (2020) identify that KAMs increase the accountability of management in financial reporting behavior by reducing aggressive management judgements about subjects which are disclosed in KAMs.

Lastly, with regards to auditor liability, research findings are divided. Two experimental studies in *The Accounting Review Journal* show these diverging views: Brasel et al. (2016) show that KAMs could potentially decrease auditor reliability, whereas Gimbar et al. (2016) find that KAMs increase auditor legal liability compared to the traditional audit report.

3.3 Contribution

This study aims to bring contribution to the existing body of research on the market reaction to KAMs in two main ways: firstly, it is set on the Dutch market, as opposed to previous studies which were heavily focused on the Anglo-Saxon economies like the UK and US (with experimental studies and archival studies on other audit disclosures such as internal controls over financial reporting), and secondly, it uses a larger data set in order to examine effects of KAMs in a long-term study.

First, the previous archival studies on the extended audit report comes primarily from the UK and the US setting. Whereas there is a number of review and experimental studies set in Europe (Germany: Gold et al. (2012) and Boolaky & Quick et al. (2016), Netherlands: Litjens et al. (2015)), empirical evidence based on archival studies is missing.

The Dutch audit tradition is long-standing and has been leading in audit quality in the past century (Humphrey, et al., 2018). After several scandals in the beginning of the 2000's, it suffered a considerable reputation blow and has been on its way to regain public credibility and achieve a high level of audit quality. With the audit profession being in the spotlight, the market reaction to new audit disclosure could be sharper. In addition, there are large differences in the ownership structure of the Dutch and British publicly traded companies, stemming from the common law (UK)/civil law (NL) divergence (La Porta, et al., 1999). Corporate ownership in the UK is more dispersed compared to the Netherlands, whose public companies tend to combine corporate ownership with family ownership. This can influence the relationship between auditor and owners: the owner would rely more on the audited financial statements in a dispersed medium. Other institutional factors inherited from the legal origin of the countries, such as shareholder protection and external financing, could also affect the value of the extended audit report on the market.

Second, based on the review of prior literature, several limitations can be identified. In experimental settings, one key disadvantage is that case studies do not reflect the information environment of listed companies, increasing the probability that participants will react to the information in the KAMs. In addition, based on the archival studies on the impact of the extended audit report on the market, it is evident that the window of observations is quite limited, centering around the year when the regulation has been implemented ((Reid, et al., 2015), (Gutierrez, et al., 2018), (Lennox, et al., 2021)) and is largely based on the audit regulation in the UK, mandated by FRC. It is possible that investors do not yet know how to

react or price the disclosures included in the extended audit report – similarly to a lack of reaction to explanatory language found by Czerney et al. (2019). This can be ameliorated by using a longer timeline of observations, where the market would react to the publishing of subsequent extended audit reports.

This paper attempts to address some of these limitations by using a six-year data span (2014 – 2020) on KAMs hand-collected from financial statements (including the extended audit report). This allows the opportunity to examine how the evaluation of KAMs can impact the market, as the market may be uncertain how to react to an initial KAM disclosure. In addition, a larger data set also enables the observation of how various aspects on the KAMs may affect the market: changes in the disclosed KAMs (such as new KAMs or omission of previously identified KAMs), the information content of KAMs (such as accounting area), as well as changes in KAM disclosures prompted by auditor changes.

The study of Bédard, et al (2018) examines the effects of explanatory language included in audit reports (justifications of assessments) in line with local requirements. While acknowledging that this study does apply a larger data set of French audit reports (2002 – 2011), it is important to note that a variety of events has occurred in the global and European economic market – including the 2007-2008 financial crisis, new audit reforms (Regulation No 537/2014 (2014)), as well as the implementation of IFRS standards (2021). These have led to changes in the economic environment, potentially affecting some of the variables of interest, like auditor behavior, financial reporting, investor behavior. As such, it is difficult to predict whether the findings of Bédard, et al (2018) would extend to periods beyond 2011.

4. Hypotheses Development

With the current divided findings over the market value of KAMs, this study aims to provide a perspective from a new institutional setting using an extended data set. This chapter includes the hypotheses resulted from the main research question.

Based on the conceptual framework and the literature review, the value of the traditional audit report has been outlined, with a subsequent identification of the information gap and the implementation of the new audit report. The addition of KAMs to the audit report is intended to increase the value and relevance of the audit report to the users of the financial statements (IAASB, 2011). As such, the first hypothesis follows the aspiration of regulators and identify the market reaction to the extended audit report. If the market finds useful the disclosures in the extended audit report, the reaction will be reflected in the changes in the market value of

the share, as investors assess information (such as disclosure of financial risks), leading to increases or decreases in the share price or trading activity. Alternatively, information already known by the market is not likely to lead to a change in the market value.

H₁: The market reacts positively to the extended audit report (EAR).

Three subsequent questions are formulated, deriving from the information gap concept.

Based on findings from experimental studies, KAMs were noted to have a signaling effect and an attention directing effect. However, there is also an indication that an increased number of KAMs disclosed dilutes the attention of the investor (shortening the span of time spent on reading it) (Sirois, et al., 2018). As such, an increased number of KAMs may fail to warrant any reaction from the market.

It is possible that the investor associates a high number of disclosed KAMs with a heightened risk environment at the entity, signaling future misstatements (Czerney, et al., 2014). In this case, the investor would negatively react to the increased number of KAMs.

Lastly, a large number of KAMs in the audit report may provide richer information to the investor, as such narrowing the information asymmetry to which the response may be positive. This is in line with the credibility theory noted in Kohler et al. (2020).

H_{2A}: The market reacts negatively to the number of KAMs disclosed in the audit report.

With regards to the length of KAMs, three possible scenarios could apply. First, short KAM paragraph could indicate insufficient information disclosed by the auditor, leading to no market reaction. Alternatively, a short KAM may lack sufficient explanation over the resolution of the identified risk, signaling future misstatement and warranting a negative response.

On the other side, there is a possibility that the investor will not read the KAM if it is too lengthy. This would fail to address the information gap by providing simply ‘more’ information instead of ‘the right’. The outcome would be a lack of market response.

Lastly, it is possible that KAMs become boilerplate with recurring disclosure, as such providing little information which was previously undisclosed. Again, this scenario would lead to a lack of market response.

H_{2B}: The market reacts negatively to the length of KAMs disclosed in the audit report.

The preliminary PwC report (2014) (illustrating the results of the regulation pilot) categorizes the KAMs disclosed in the first year of the extended audit report. Out of a total of 68 KAMs, 26 were related to taxation, goodwill valuation and acquisitions or disposals. Several KAMs noted were included only one or two times in all the audit reports. A specific KAM would be defined as an item with a less frequent occurrence, which is specifically related to an event or risk associated with the company. Therefore, a generic KAM is one frequently occurring between entities. It is likely that the frequently occurring KAMs are related to generic risks associated with the financial statements (such as revenue recognition, goodwill, and other estimates) and would be already known and priced by the market. When it comes to specific KAMs, an investor may interpret a these as a valuation risk, pricing it accordingly. Alternatively, the inclusion of a specific KAM may signal to the investor a higher-level financial reporting quality as well as audit quality, thus reducing information asymmetry. For example, KAMs disclosing the implementation of an internal control system or financial systems transformation could indicate increased financial reporting quality. A third option is that the investors are already aware of the specific risk disclosed in the KAM through shareholder meetings and other firm disclosures, leading to an insignificant result. As such, the market would react stronger to a specific KAM. Further, it is expected that the length of the KAM would strengthen the effect of the disclosure on the market reaction, in line with the reasoning included for H_{2B} .

H_{2C}: The market reacts stronger to a specific KAM as opposed to a generic KAM.

H_{2D}: The market reacts negatively to a lengthier specific KAM.

Starting from the concept included above from the review study of Church et al. (2008), a standard audit report format enables the easy identification of audit reports deviating from the norm. It is possible that the same consideration would apply to the extended audit reports. The recurrence of KAMs disclosed year after year is not unlikely, leading to no more new information to be extracted by the investor. Given that the pattern of KAM disclosures from year to year does not present significant differences (Woudenberg, et al., 2021), it is likely that a KAM which was not previously disclosed would signal a new risk identified at the company (such as a one of transaction like business combination, acquisition, restructuring, etc.), leading to a strong market response. A reaction is also probably when a KAM is no longer reported, as it is no longer identified as a significant risk area by the audit firm.

Further, in case of an auditor change, the new audit firm may decide to disclose different matters. The existing research on the auditor change does not provide a clear answer on its

effect on the audit quality, as some studies find a longer tenure leads to higher audit quality, while claims exist to the opposite, where an auditor change may provide a new perspective on the audit (Lennox, et al., 2014). In the context of the KAMs, an auditor change combined with a new KAM is expected to lead to a negative response from the market. This results from the risk assessment performed by the new auditor, increasing the likelihood that new critical risk areas would be identified, despite the limited tenure. In the group of Dutch listed entities forming the sample of this study, several auditor changes have occurred, such as Heineken N.V. in 2015 or Koninklijke Philips N.V. in 2016. New KAMs disclosed by a new auditor would lead to a reduction in the information asymmetry and potentially warrant a positive market reaction. Conversely, it is possible that the market doesn't know how to react to new KAMs due to a different wording or content, failing to produce any reaction. As such, in addition to the market reaction to changes in the reported KAMs, the effect of the auditor change interacting with the change in KAMs is examined.

H_{3A}: The market reacts to a change in the KAMs disclosed in the audit report.

H_{3B}: The market reacts to a change in the KAMs disclosed due to auditor change.

5. Research Design

Hypotheses developed in the previous chapter are estimated by one general model where the $DepVar_{it}$ represents (for company i in year t) one of the proxies used to measure the market reaction – (1) cumulative abnormal return or (2) abnormal trading volume; whereas the *KAM Variable* represents one of the independent variables related to the extended audit report, such as (1) the issue of the extended audit report, (2) the number of disclosed KAMs, (3) the length of disclosed KAMs, (4) the content of the KAMs (such as generic or specific) and (5) any change in the disclosed KAMs.

$$(1) DepVar_{ijt} = \alpha + \beta_1 (KAM Variable) + Controls + \varepsilon_{ij}$$

The next sections of this chapter describe the dependent variables representing the chosen proxies for the market reaction, the independent variables for the KAM characteristics, as well as the relevant control variables.

5.1 Dependent Variables

The hypotheses put forward in this study aim to examine whether the extended audit report is informative and relevant to investors on the Dutch stock market, therefore it is essential to

define a proxy for the market perception/reaction, which unlike the independent variables, is not a directly observable phenomenon.

Beaver (1968) and later Bamber et al. (2010) posit that a disclosure has information content when it causes a change in the investment decision, which would be reflected directly in the trading activity on the stock market. Consequently, observing the trading activity around the timing of the disclosure allows one to gain an insight into the effect of the financial disclosure. Empirically, this is performed with an event study on the price or volume of the traded stock (MacKinlay, 1997).

Consequently, an event study serves as an appropriate method to examine the market reaction to the information in the extended audit reports, given that the extended audit report includes additional disclosures (in comparison with the old-format audit report), and the timing of its release is public (which usually corresponds with the annual report of the firm – confounding events are discussed later in this chapter). Specifically, two different measures are used to proxy the market reaction: cumulative abnormal returns (price-based) and abnormal trading volume (volume-based). This is consistent with the extensive body of financial accounting literature on the information content of financial disclosures, including the studies mentioned in the literature review chapter on the extended audit report and KAMs (Bédard, et al. (2018), Gutierrez, et al. (2018), Reid et al. (2015)), as well as on other audit disclosures such as explanatory language in the audit report study (Czerney, et al., 2019).

5.1.1 Cumulative Abnormal Return

The first dependent variable to be used in the general model included above is the cumulative abnormal returns (CAR). The CAR event study aims to capture the effect of an event, i.e., the disclosure of the extended audit report with KAMs based on abnormal returns on stock. The abnormal returns are computed as the actual realized returns during the period of interest less the “normal” or “expected” returns which would have been realized had the event not occurred.

The period of interest in an event study normally includes the day of the event, i.e., the date when the extended audit report is published, expanded to several days before and after the event during which the market is expected to react to the newly disclosed information. In order to design a reliable event study, it is essential to select a fairly short event window which reduces the probability of confounding events to the extent possible: for this model, the event study set is the day before the audit report publication (-1) to three days after (+3). Given that the audit report is always disclosed with the financial statements, it is inevitable that

confounding events exists. Several variables are included in order to control for these: such as the timing of the earnings announcements prior to the publishing of the annual report.

In addition, an estimation period is selected in order to compute an estimation of the normal returns. It is customary for the public firms to hold a conference call subsequent to the end of the financial year where the financial results are presented – the earnings announcement, which is later (by approximately two weeks) followed by the publication of the annual report, including audited financial statements and the audit report. There are also occurrences where the earnings announcement is held on the same date as the release of the annual report and audit report. Historically, earnings are found to hold considerable informational value to investors, as evidenced by both abnormal returns and abnormal trading volumes (Landsman and Maydew (2002), DeFond, et al. (2007)). As such, it is appropriate to select an estimation period which does not include the earnings announcement. Following the UK study of Gutierrez, et al. (2018) on the extended audit report, the period from 191 to 41 trading days (150 trading days in total) before the date of publishing the audit report, is selected for the estimation period of the normal returns. This ensures that the date of earnings announcement is excluded from the estimation period. *Figure 2* below provides a visualization of the event study.

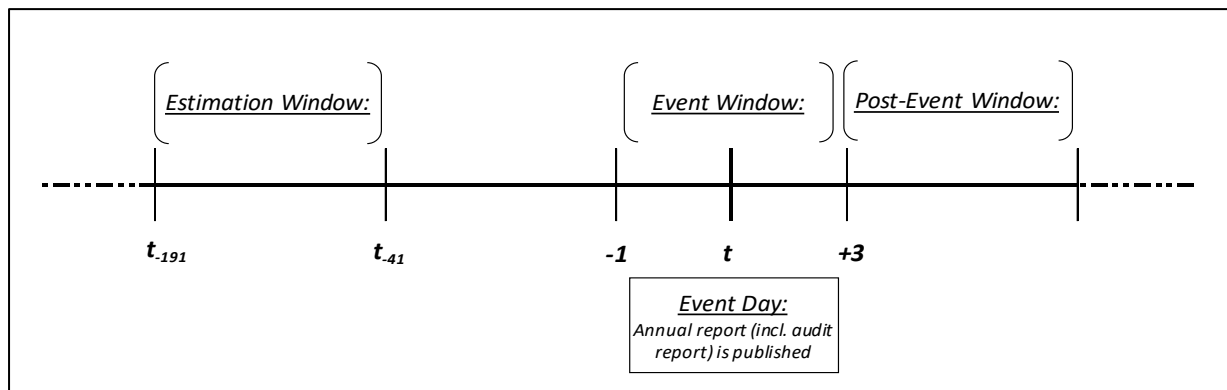


Figure 2. Visualization of the event study

Having established the time windows for the event study, the approach to calculating CAR in this paper follows the market model according to MacKinlay (1997). First step is to compute the parameters used to estimate the expected returns:

$$(2) R_{it} = \ln (P_{it}/P_{it-1})$$

$$(3) R_{it} = \alpha_i + \beta_i * R_{mt} + \varepsilon_{it}$$

Equation (2) displays the logarithmic calculation of the returns according to Strong (1992), as these are more fitting to capture returns over an interval. The return of firm i on day t R_{it} is calculated as the natural logarithm of the share price of firm i on day t (represented by P_{it}) scaled by the firm's price on the previous day $t-1$ (shown by P_{it-1}). In equation (3), R_{it} the daily stock return of company i on day t during the estimation window illustrated above (-191, -41 days) from date of publishing the annual report. Further, R_{mt} is the daily market return during the estimation window – in the case of Dutch public entities the AEX All-Share index. The model is estimated as the pooled regression of all the observations in the estimation period for each firm i and the market. Lastly, the regression provides the outputs for the intercept α_i and slope β_i which are further used to estimate the expected return in the event window, as follows:

$$(4) AR_{it} = R_{it} - (\alpha_i + \beta_i * R_{mt})$$

In this equation, AR_{it} is the abnormal stock return of company i on day t during the event window (-1, +3 days from the publication of the audit report). R_{it} the actual daily stock return of company i on day t and R_{mt} is the daily market return during the event window. The portion of the equation $(\alpha_i + \beta_i * R_{mt})$ aims to compute the expected returns had the event not occurred, using the typical relationship between the company stock and the market, proxied by the intercept α_i and slope β_i calculated in equation (1).

Finally, the cumulative market return, the individual abnormal returns are summed up for the five days in the event window ($t-1$ being the day before the publication of the audit report and $t+3$ being the third day after):

$$(5) CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it}$$

5.1.2 Abnormal Trading Volume

Another measure of the market reaction is abnormal trading volume (AVOL) around the event date. Cumulative abnormal returns reflects consensus among investors in pricing the disclosure. Volume tests however reflect the expectations of individual investors, as opposed to the market as a whole (Beaver, 1968). This is particularly pertinent to audit-related disclosures, due to the ambiguity of their signal to the investors: extensive disclosures such as more or longer KAMs may indicate higher risks or may contribute to narrowing the information asymmetry. As such, volume shifts would be noted in the stock positions, without a price reaction since no price consensus is reached.

The abnormal trading volume variable is computed based on the same event study setting as elaborated above with the 5-day event window and the 150-day estimation window preceding annual and audit report publishing. The abnormal trading volume metric (AVOL) is determined using the approach of DeFond et al. (2007) as follows:

$$(6) AVOL_{it} = \ln (VOL_{it}/\overline{VOL}_i)$$

In this equation, VOL_{it} represents the average trading volume of firm i during the event period, \overline{VOL}_i represents the mean trading volume of firm i during the estimation period.

5.2 Independent Variables

This section includes the description of the *KAM Variable* independent variables in the general model in equation (1), according to the hypotheses identified in the previous chapter:

$$(1) DepVar_{ijt} = \alpha + \beta_1 (KAM Variable) + Controls + \varepsilon_{ij}$$

H₁: *Market reacts positively to the extended audit report (EAR).*

$$(7) DepVar_{ijt} = \alpha + \beta_1 (EAR_{it}) + Controls + \varepsilon_{ij}$$

The independent variable EAR_{it} in H_1 is a dummy variable where 0 signifies old format audit report for company i in year t and 1 if an extended audit report was published, during the five-year period before 2014 when the extended audit report was introduced and for seven years after. This is especially relevant for the first years when companies have issued an extended audit report in line with the pilot regulation. The coefficient β_1 will be positive if the extended audit report is informative for investors. It is expected that the EAR contains informative disclosures related to financial reporting risks which were addressed by the auditor, as such reducing the information asymmetry between the entity and investor. Even if investors do not find the EAR has valuation effects as evidenced by the *CAR*, i.e. there is uncertainty over how the disclosures should be priced, the information content in the EAR would be captured by the second model used – *AVOL* – with a positive coefficient.

H_{2A}: *Market reacts negatively to the number of KAMs in the audit report.*

$$(8) DepVar_{ijt} = \alpha + \beta_1 (NumKAM_{it}) + Controls + \varepsilon_{ij}$$

H_{2B}: *Market reacts negatively to the length of KAMs in the audit report.*

$$(9) DepVar_{ijt} = \alpha + \beta_1 (LenKAM_{it}) + Controls + \varepsilon_{ij}$$

The independent variable $NumKAM_{it}$ in H_{2A} is a discrete variable which denotes the number of KAMs disclosed in the extended audit report for company i in year t , whereas $LenKAM_{it}$ in H_{2B} is a discrete variable denoting the length of KAMs, calculated as the natural logarithm of the total number of characters in the KAM section of the extended audit report for company i in year t . Both the number and the length of KAMs are expected to effect a negative reaction from the market measured based on stock return CAR , as they could signal a higher investment risk and potential future misstatements. This is in contrast with the first hypothesis, which compares an old format “generic” audit report with the extended audit report containing substantial disclosures. Further, focusing on the content of the KAMs in the other hypotheses, investors could interpret the disclosures in KAM – which are normally related to financial risks identified by the auditor – as negative news. Again, in the $AVOL$ model using the volume measure of the market reaction, the coefficient is expected be positive if the KAMs have information content.

H_{2c} : *The market reacts stronger to a specific KAM as opposed to a generic KAM.*

$KAM\ Variable = NumSpecKAM_{it} + NumGenKAM_{it}$

$$(10) DepVar_{ijt} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (NumGenKAM_{it}) + Controls + \varepsilon_{ij}$$

H_{2D} : *The market reacts negatively to a lengthier specific KAM.*

$$(11) DepVar_{ijt} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (LenSpecKAM_{it}) + \beta_3 (NumSpecKAM_{it}) * (LenSpecKAM_{it}) + Controls + \varepsilon_{ij}$$

The independent variables $NumSpecKAM_{it}$ and $NumGenKAM_{it}$ in H_{2c} and H_{2D} are discrete variables denoting the number of specific and generic KAMs, and $LenSpecKAM_{it}$ in H_{2D} denotes the length of a specific KAM measured as the natural logarithm of the total number of characters in all specific KAM.

The distinction between generic and specific KAMs is previously explained in the hypothesis development chapter. Generic KAMs are those which are prevalent in many companies or across industries and expected to already be known by investors, warranting little to no market response from their disclosure, resulting in an insignificant value for the coefficients. On the other hand, specific KAMs are associated with unique company risks, which may be more informative to investors, leading to a positive coefficient in the $AVOL$ model.

The determination of generic versus specific KAMs involves a certain degree of subjectivity, due to manual data collection and classification. Several publications examine the KAMs

disclosed in the first years after the introduction of the new regulation. Specifically, Woudenberg et al. (2021) have clustered the key audit matters collected from extended audit reports between 2014 and 2017 into 13 distinct categories with the caveat that one KAM may be included in more than one category. The authors further note the relative consistent pattern of KAM reporting throughout the years in scope. Further, the audit firm Mazars has released a study (2018) of audit reports of listed Dutch, French and British companies after the ISA 701 has come into effect, compiling data from reporting years 2014 to 2017 and classifying the KAMs into 25 categories. Further, the approach of Lennox et al. (2021) classifies a KAM as generic if it occurs in more than 50% of audit reports, and otherwise assigned as specific. For the purposes of hypothesis H₃, the starting point is the summary of subjects of key audit matters outlined by Woudenberg et al. (2021) as it reflects specifically KAMs disclosed in audit reports of Dutch public firms. However, since this study covers a much larger time period than 2014-2017, several additional subjects of KAMs are identified and added to the summary. Additionally, the category Solvency II – which is a specific regulation for financial institutions like banks and insurance firms – is excluded from the categorization used in this paper, as financial institutions are also excluded from the sample – as elaborated in the next chapter. Next, the frequency of disclosure of certain KAMs is used to further determine specific and generic KAMs, in addition to the nature of the disclosure. For example, auditors include a KAM about the valuation of assets in more than a third of all the extended audit reports – whereas a KAM about related party transactions is only disclosed in less than 1% of all extended audit reports. This indicates that KAMs related to assets are generic, whereas KAMs over related parties are specific. Ultimately, this process leads to the distribution of specific and generic KAMs illustrated in *Table 1* included below. To note, liabilities KAMs are categorized generic, as these have similar nature to the other KAMs related to financial statement items, such as assets and revenue, despite the lower frequency. On the other hand, KAMs related to mergers/acquisitions/disposals/partnerships have a higher frequency at around 10%, however the nature of these transactions is explicit to each entity, as such are categorized as specific. Four additional KAM subjects have been identified in the data collection which were not included in the paper of Woudenberg et al. (2021): litigations and claims, changes in accounting principles and restructuring. All KAMs of a different nature are grouped under subject Others.

Table 1. Generic and Specific KAMs Categories

No.	Key Audit Matter Subject	Consistent with Woudenberg et al. (2021)	Specific or Generic Category?	Number of KAMs	Distribution of KAMs
1.	Assets	Yes	Generic	468	35%
2.	Revenues	Yes	Generic	225	17%
3.	Taxation & Deferred Taxes	Yes	Generic	164	12%
4.	Liabilities	Yes	Generic	59	4%
5.	Merger/acquisition disposal/partnership	Yes	Specific	133	10%
6.	Financing/going concern/Financial covenants	Yes	Specific	54	4%
7.	Internal controls	Yes	Specific	50	4%
8.	Litigations and claims	No, added	Specific	43	3%
9.	Changes in accounting principles	No, added	Specific	36	3%
10.	Others	No, added	Specific	27	2%
11.	IT/data processing	Yes	Specific	24	2%
12.	Initial audit engagement	Yes	Specific	18	1%
13.	Restructuring	No, added	Specific	18	1%
14.	Related parties/intercompany	Yes	Specific	3	0%
15.	Outsourcing	Yes	Specific	1	0%
				1323	100%

The prediction of the *CAR* model however could be two-fold. An investor may interpret the specific KAM as a valuation risk, pricing it accordingly – leading to a negative coefficient of the independent variable $NumSpecKAM_{it}$. Alternatively, the investors are already aware of the specific risk disclosed in the KAM through shareholder meetings and other firm disclosures, leading to an insignificant result. Further, in hypothesis H_{2D} includes the interaction of $NumSpecKAM_{it}$ and $LenSpecKAM_{it}$ which aims to examine the market reaction to a lengthy specific KAM. It is expected that a lengthy specific KAM would warrant a higher market response as described above, which would result in a higher statistical significance of the corresponding coefficients.

H_{3A} : The market reacts to changes in KAMs disclosed in the audit report.

$$(12) DepVar_{ijt} = \alpha + \beta_1 (NumNewKAM_{it}) + \beta_2 (NumPrevKAM_{it}) + \beta_3 (NumExclKAM_{it}) + Controls + \varepsilon_{ij}$$

H_{3B}: *The market reacts to changes in KAMs disclosed in the audit report due to auditor change.*

$$(13) DepVar_{ijt} = \alpha + \beta_1 (NumNewKAM_{it}) + \beta_2 (AuditorChange_{it}) + \beta_3 (NumNewKAM_{it}) \\ * (AuditorChange_{it}) + Controls + \varepsilon_{ij}$$

The independent variables $NumNewKAM_{it}$, $NumPrevKAM_{it}$ and $NumExclKAM_{it}$ in H_{3a} and H_{3b} are discrete variables denoting the number of new KAMs, previously reported KAMs and no longer reported KAMs. Previously disclosed KAMs are likely to already be incorporated by investor into the pricing of the entity, as such it is unlikely for inventory to keep reacting to known information, leading to an insignificant coefficient for $NumPrevKAM_{it}$. Conversely, KAMs which were not previously disclosed ($NumNewKAM_{it}$) and KAMs no longer disclosed ($NumExclKAM_{it}$) are likely to signal new information, as such the coefficient in the *AVOL* model is expected to be positive. When it comes to the *CAR* model, the directional prediction for the $NumNewKAM_{it}$ is a negative coefficient, as it is expected to signal a new financial reporting risk. There is a possibility however that this risk has already been communicated within shareholder meetings or quarterly reportings, lessening the market impact.

In H_{3b} an interaction term $AuditorChange_{it}$ (representing a dummy variable equaling ‘1’ in the year of an audit change and ‘0’ otherwise) is included to examine the effect of an auditor change on the disclosure of KAMs, particularly when new KAMs are included.

5.3 Control Variables

Within the models constructed based on the two dependent variables cumulative abnormal returns *CAR* and abnormal trading volumes *AVOL*, a number of variables are included to control for firm characteristics, as well as various factors which are associated with pricing (in the *CAR* model) and trading activity (in the *AVOL* model).

Generally, the controls follow prior research examining the market reaction (through similar models) to different types of audit-related disclosures (Czerney et al., (2019), Lennox et al., (2021) and Carcello & Li, (2013)).

First, the firm variables size *SIZE* and age *AGE* are included which are found relevant for the modeling of trading volumes and returns (Fama & French, 1993). Size is defined as the natural logarithm of market value of the equity for company i in year t , whereas age is the natural logarithm of number of years since the company’s incorporation.

Next, several variables are included to control for the firm's performance, such as sales growth *SGR*, return on assets *ROA* and loss *LOSS*. A high sales growth (measured as the sales in year t - sales in year $t-1$ scaled by sales in year $t-1$) and *ROA* (measured as the net income before extraordinary items in year t , scaled by total assets at the end of year t) may impact the return measure, as informed investors would price the company higher. The opposite may be the case for companies experiencing a decline in sales and limited returns. Loss is a dummy variable equal to 1 in case of a negative net income and 0 otherwise, controlling for companies in financial distress which may experience abnormal negative returns. Other firm-specific control variables include market to book ratio *MTB* (computed as the market value of equity at the end of year t scaled by the book value of equity at the end of year t) and leverage *LEV* (computed as the long-term debt scaled by total assets at the end of year t).

Two control variables are included to control for potentially confounding events, such as the timeline of the earnings announcement and publishing of the annual report, as these may affect the market reaction. These are: the report lag *REPLAG* (measured as the natural logarithm of the number of days between the end of the fiscal year and the issue of the audit report) and the release of the audit report in comparison with the earnings announcement *PostEA* (dummy variable with value of 1 signifying the audit report is released more than 3 days after the earnings announcement and 0 otherwise). The number of days between the end of the fiscal year and the publishing date can also relate to delays in the filing of the annual report, which may signal difficulties in the audit process. Several audit-specific variables are also included to control for the client-auditor relationship and audit perception: *BIG4* (dummy variable taking the value of 1 in case one of the big4 firms is the auditor and 0 otherwise) and *QOPINION* (dummy variable with value of 0 if the audit opinion is unqualified and 1 otherwise).

Lastly, the models are controlled for firm-fixed effects and year fixed effects.

6. Sample selection and descriptive statistics

6.1 Sample selection and data collection

For the purposes of executing the research design, data is obtained from financial databases (such as Compustat Global and Datastream) as well as hand-collected from annual report publications including the extended auditor report. As a starting point, all companies with listed ordinary shares on the Euronext Amsterdam stock market (specifically companies in AEX All-share index) are considered. This dataset has been obtained from Datastream resulting in 174 entities and serves as a basis for further sample selection.

From this set, a number of 59 foreign ISINs are excluded, as these are companies with primary listings in other countries where they operate in a different institutional and legal setting and are audited by non-Dutch auditors (such as Shell or Unilever). Next, ten financial institutions (such as bank, insurance companies and investment companies) are excluded from the sample to avoid any effects of high leverage, which is consistent with the approach in literature on audit disclosures (Carcello & Li (2013), Gutierrez, et al. (2018)). In addition, financial institutions are associated with a higher information environment due to specific reporting requirements. These omitted entities result in a list of 104 companies for which data related to the model variables is collected.

Independent variables are hand-collected and computed from the published annual reports for years 2008 to 2020. This has led to the further exclusion of 17 companies where annual reports were not publicly available or did not contain an independent auditor's report. Several cases where annual reports are not available are also accompanied by AFM notifications regarding non-compliance. In the case of missing audit reports, the entities were not able to engage a PIE-licensed auditor for that financial year, which is disclosed in the annual report. Any reports in Dutch were translated to English in order to avoid any language-specific impact on the length of the sentences and number of words used which can affect the length of independent variables $LenKAM_{it}$ and $LenSpecKAM_{it}$. The auditor name, audit opinion and reporting date are also hand collected from the annual reports. The reporting date coincides with the signing date of the annual report and audit report, as well as the release of the report to the public. The reporting date is further used in the event study, as it most accurately represents the date when the auditor report was published, compared to dates stored in the available financial databases.

Dependent variables CAR and AVOL are obtained from Datastream. The cumulative abnormal return is obtained using the Datastream Event Study Tool to generate the abnormal returns in the selected 5-day event window, whereas the abnormal trading volume is manually computed from trading volume figures in Datastream. In order to obtain a uniform sample for the dependent variables, taking into account the timing of the regulation and first-time issuance of extended audit reports, six entities with financial year-end different than 31 December 20XX are excluded from this data set. This results in a final sample of 81 companies.

Control variables are obtained from both Datastream and Compustat Global and combined on the basis of the ISIN and financial year as unique identifiers.

Lastly, the final sample is prepared according to the models described in the previous chapter. For the first hypothesis H1 examining the effect of the extended audit report, the sample includes the period before the introduction of related regulation in 2014, as well as after (2008 – 2020). The observations in the financial year 2013 are excluded, as it was a transition year for the regulation where early adopters have issued an extended audit report, whereas it was not mandatory for all listed entities. In addition, companies with IPOs after 2014 were also excluded from the sample. This is in order to ensure that the panel data is uniform before and after the introduction of the audit report regulation. IPOs between 2008 and 2013 remain in the sample, as these firms provide observations of traditional audit reports (before 2014) as well as observations of the extended audit report starting with 2014. This factor leads to several firms which have panel of less than 12 years of observations (2008-2020).

For the other hypotheses H2 – H3 examining the effect of KAM characteristics, the period from 2014 to 2020 is relevant where an extended audit report containing KAMs is available. For the third hypothesis H3A+B, which examines new KAMs and previously reported KAMs, the year 2014 is excluded as all KAMs are new in the first year of the regulation being implemented.

The steps to sample selection are illustrated in *Table 2* below:

Table 2. Sample Selection Steps

	Firms	No. Obs. (CAR)	No. Obs. (AVOL)
Companies listed on Euronext Amsterdam (AEX All share)	174	n/a	n/a
Less: Foreign firms	59	n/a	n/a
Less: Financial institutions	10	n/a	n/a
Less: Firms with no data	17	n/a	n/a
Draft company list	88	n/a	n/a
Less: Companies with fiscal end not 31.12.20XX	6	n/a	n/a
Final company list	82	890	890
H1: Exclude period 2013	n/a	65	65
H1: Exclude IPO post 2014	15	85	85
H1: Exclude missing controls data	2	20	39
H1 Final population	65	720	701
H2 & H3: Exclude periods 2008-2013	n/a	388	388
H2 & H3: Exclude audit reports with no KAMs	n/a	33	33
H2: Exclude missing controls data	n/a	7	14
H2: Final population	80 (82)	462	455
H3: Exclude period 2014	n/a	66	65
H3: Exclude missing controls data	n/a	14	3
H3: Final population	77 (76)	382	387

6.2 Descriptive Statistics

For the three samples summarized based on each hypothesis, descriptive statistics are included below in tables 3-5.

The mean of 0.54 for EAR (the dummy variable for issuance of an extended audit report) in Table 3 indicates that approximately half of the observations in the sample for H1 have received an extended audit report. This points to a fairly symmetric distribution of observations between old-format audit reports and extended audit reports containing KAMs. The means for the dependent variables indicate an overall positive cumulative abnormal return and abnormal trading volume.

Further, most firms in the H1 sample have been listed for 45 years on average and can be considered profitable based on the mean sales growth with a loss occurring in about 26% of the observations. As expected, the majority of firms obtain unqualified audit opinions (QOpinion) with other types of opinions occurring in less than 1% of cases (Czerney, et al., 2014). Audit reports are issued within 68 days from the financial year-end (REPLAG), which is expected in light of the regulation that financial reports must be published within four months after the end of the financial year (AFM, 2022). In approximately half of the observations, the audit report is published later than when earnings are publicly announced (POSTEA).

In approximately 86% of the observations, the auditor is a Big4 firm, which is expected as listed firms require more resources and expertise. In addition, listed firms are required by AFM to engage an auditor with a PIE license (AFM, 2022) which leaves a limited group of auditors with only two non-Big4 firms (KPMG, Deloitte, PWC, EY, Mazars and BDO).

In addition, outliers were identified for several of the controls variables and independent variables and have been treated in order to reduce any influence from extreme values and to avoid losing observations from the sample. The descriptive statistics overview contains both the original and treated variables, noted as follows: Winsorized 5% and Winsorized 10% for variables with outliers winsorized at the 5th and 95th percentiles and 10th and 90th percentiles respectively. Some variables are winsorized at 10%, as outliers continued to be identified within the boxplot, after initially winsorizing at 5%. Most notable difference are noted in the control variables for sales growth (SGR), return on assets (ROA) and market to book value (MTB). A two tailed t-test was performed, failing to identify a significant difference in means between the original and winsorized values.

Table 3. Descriptive statistics. H1 sample

Variable	Description	Observations	Mean	Std. Dev.	Min.	Max.
CAR	Original	720	0.002	0.066	-0.332	0.298
CAR_W5	Winsorized 5%	720	0.002	0.051	-0.104	0.110
AVOL	Original	701	0.193	0.860	-4.394	4.077
AVOL_W5	Winsorized 5%	701	0.208	0.685	-1.197	1.355
EAR	Original	720	0.543	0.498	0.000	1.000
SIZE	Original	720	19.916	2.335	13.370	25.830
SIZE_W5	Winsorized 5%	720	19.919	2.213	15.840	23.620
AGE	Original	720	3.809	0.740	2.200	5.830
SGR	Original	720	0.412	7.049	-5.060	181.180
SGR_W10	Winsorized 10%	720	0.025	0.130	-0.190	0.250
LOSS	Original	720	0.256	0.436	0.000	1.000
ROA	Original	720	-0.038	1.159	-30.610	0.350
ROA_W10	Winsorized 10%	720	0.026	0.062	-0.100	0.110
MTB	Original	720	2.827	21.208	-158.500	512.470
MTB_W10	Winsorized 10%	720	2.028	1.309	0.650	4.860
LEV	Original	720	0.242	0.166	0.000	1.150
LEV_W5	Winsorized 5%	720	0.236	0.153	0.000	0.540
POSTEA	Original	720	0.499	0.500	0.000	1.000
QOPINION	Original	720	0.006	0.074	0.000	1.000
REPLAG	Original	720	4.216	0.391	2.830	5.780
BIG4	Original	720	0.860	0.348	0.00	1.000

Refer to **Appendix 1** for variable definitions

Tables 4 and 5 summarize the descriptive statistics for the samples of the other two hypotheses. Most controls variables are consistent with the first sample for H1, with slight increases in the size (SIZE), sales growth (SGR) and market to book ratio (MTB). The average age decreased to 39 years, as companies with IPO after 2014 have been included in these samples. As elaborated above, these were excluded from the sample of hypothesis 1, as these do not provide observations for the traditional audit report before 2014. The frequency of audit reports from Big4 companies has increased to over 91%, possibly due to the discontinued PIE license for Accon and Baker Tilly Berk? audit firms. The frequency of audit reports being issued after the earnings announcement (POSTEA) has also decreased.

After the exclusion of period 2008-2013 to obtain the samples for H2 and H3 (Tables 4-5), there are several notable differences in the values of the dependent variables. The mean cumulative abnormal return (CAR) has become negative, whereas the mean abnormal trading volume (AVOL) has significantly increased compared to the sample for H1 in Table 3.

The descriptive statistics for the H2 sample (Table 3) indicate that the extended audit reports contain three KAMs on average (NUMKAM) with a maximum of seven, out of which two are

generic KAMs (NUMGENKAM) and one is specific (NUMSPECKAM), according to the classification described in the previous chapter.

The descriptive statistics for the H3 sample (Table 4) indicate that in the subsequent years 2015-2020, on average one new KAM is reported (NUMNEWKAM) with two KAMs reported in the previous financial year (NUMPREVKAM) and one KAM no longer reported (NUMEXCLKAM). Lastly, 52 auditor changes were noted (AUDITORCHANGE), representing a frequency of 13% throughout the H3 sample.

Table 4. Descriptive statistics. H2 sample

Variable	Description	Observations	Mean	Std. Dev.	Min.	Max.
CAR	Original	462	-0.002	0.076	-0.284	0.298
CAR_W10	Winsorized 10%	462	-0.001	0.051	-0.089	0.084
AVOL	Original	455	0.362	0.831	-3.548	3.041
AVOL_W5	Winsorized 5%	455	0.377	0.667	-1.108	1.490
NUMKAM	Original	462	3.258	1.245	1.000	7.000
LENKAM	Original	462	8.591	0.519	6.890	9.700
NUMGENKAM	Original	462	2.203	1.017	0.000	6.000
NUMSPECKAM	Original	462	1.054	0.945	0.000	4.000
LENSPECKAM	Original	462	5.298	3.636	0.000	9.220
SIZE	Original	462	20.218	2.652	0.000	25.830
SIZE_W5	Winsorized 5%	462	20.291	2.186	16.220	23.910
AGE	Original	462	3.659	0.893	1.390	5.830
SGR	Original	462	0.103	0.826	-5.060	10.700
SGR_W10	Winsorized 10%	462	0.034	0.126	-0.160	0.260
LOSS	Original	462	0.240	0.428	0.000	1.000
ROA	Original	462	0.014	0.167	-2.140	0.350
ROA_W10	Winsorized 10%	462	0.029	0.055	-0.080	0.110
MTB	Original	462	2.633	12.052	-158.500	59.920
MTB_W10	Winsorized 10%	462	2.491	1.692	0.670	6.000
LEV	Original	462	0.253	0.193	0.000	1.160
LEV_W5	Winsorized 5%	462	0.247	0.175	0.000	0.640
POSTEA	Original	462	0.357	0.480	0.000	1.000
REPLAG	Original	462	4.175	0.353	3.220	5.780
BIG4	Original	462	0.918	0.275	0.000	1.000

Refer to **Appendix 1** for variable definitions

Table 5. Descriptive statistics H3 sample

Variable	Description	Observations	Mean	Std. Dev.	Min.	Max.
CAR	Original	387	-0.004	0.076	-0.274	0.298
CAR_W10	Winsorized 10%	387	-0.004	0.051	-0.094	0.076
AVOL	Original	382	0.303	0.812	-3.548	3.041
AVOL_W5	Winsorized 5%	382	0.323	0.646	-1.110	1.355
NUMNEWKAM	Original	387	0.842	0.863	0.000	4.000
NUMPREVKAM	Original	387	2.318	1.136	0.000	5.000
NUMEXCLKAM	Original	387	0.987	0.895	0.000	4.000
AUDITORCHANGE	Original	387	0.134	0.341	0.000	1.000
SIZE	Original	387	20.305	2.489	1.000	25.830
SIZE_W5	Winsorized 5%	387	20.345	2.173	16.330	23.940
AGE	Original	387	3.666	0.898	1.390	5.830

SGR	Original	387	0.114	0.841	-1.000	10.700
SGR_W10	Winsorized 10%	387	0.030	0.133	-0.190	0.260
LOSS	Original	387	0.230	0.421	0.000	1.000
ROA	Original	387	0.017	0.140	-1.930	0.260
ROA_W10	Winsorized 10%	387	0.029	0.053	-0.080	0.100
MTB	Original	387	2.402	12.627	-158.500	54.370
MTB_W10	Winsorized 10%	387	2.524	1.704	0.670	6.040
LEV	Original	387	0.260	0.193	0.000	1.160
LEV_W5	Winsorized 5%	387	0.254	0.176	0.000	0.650
POSTEA	Original	387	0.488	0.501	0.000	1.000
REPLAG	Original	387	4.168	0.353	3.219	5.784
BIG4	Original	387	0.922	0.268	0.000	1.000

Refer to **Appendix 1** for variable definitions

7. Results and Findings

7.1 Pairwise Correlations

A correlation matrix is included Tables 6 – 8 for all continuous variables in the hypothesis samples (H1, H2 and H3) . These represent the Pearson’s correlation coefficient where the significant associations are marked with an asterisk at the 1%, 5% and 10% confidence levels. Similarly to the descriptive statistics approach, both CAR and AVOL models are combined into one table.

In all three samples, several correlations are noted between the dependent variables and control variables, as well as within the control variables included. The independent variable EAR is not included in the correlation matrix for sample H1 (Table 6), as it is a categorical variable. For the other two samples (Table 7-8), significant correlations are identified between the two market reaction measures and the independent variables.

In samples H2 and H3, the independent variables are continuous, allowing to examine the correlation with the two dependent variables.

In sample H2 (**Table 7**), significant negative correlations are noted between the abnormal trading volume (AVOL) and the KAM characteristics length of KAMs (LENKAM), number of specific KAMs (NUMSPECKAM) and length of specific KAMs (LENSPECKAM). It is difficult to interpret the trading volumes separate from the price movements within the investment activity. One reason for the identified negative correlation is that the decrease in the trading volumes may be preceded by decreases in price (as a result of the negative news interpreted by investors within specific KAMs disclosed), discouraging the investors to sell low. Conversely, a weaker positive correlation is noted between the abnormal trading volumes (AVOL) and the number of generic KAMs, possibly indicating that generic KAMs are

interpreted by investors as containing valuable information or as containing positive signals, compared to additional risks disclosed within specific KAMs. The length of KAMs (LENKAM) is also positively correlated to the cumulative abnormal returns, which can be interpreted as lengthier KAMs containing more information for inventors, as such decreasing information asymmetry.

In sample H3 (Table 8), a significant positive correlation is noted between the number of previously reported KAMs (NUMPREVKAM) and the cumulative abnormal returns. This may imply that investors interpret the repeated disclosure as a signal that the auditor has not identified new risks, as such indicating a lower risk profile for the firm, leading to an increased price and subsequently higher abnormal returns.

In all samples, significant correlations between the dependent variables (CAR, AVOL) and the size (SIZE) and the return on assets (ROA). This can be explained by the fact that larger and more profitable companies are more visible to the public and are associated with higher trading activities. The correlation between abnormal trading volume (AVOL) and size (SIZE) loses significance in samples for H2 and H3 (Table 7-8) when period 2008-2013 is excluded, which corresponds with the increase in the mean abnormal trading volumes noted in the descriptive statistics between H1 sample and the other two samples. This is explained by the evolution of the trading volume on the AEX All share index where the period after the market crash in 2007 was associated with lower trading volumes, recovering with an upward trend to present day.

Next, a negative significant correlation is noted between cumulative abnormal returns (CAR) as well as abnormal volumes (AVOL) and the control variable reporting lag (REPLAG), indicating that a longer period between the financial year-end and the issuance of the extended audit report is associated with a lower market reaction as measured by both proxies. This can be explained by the fact that the information within the extended audit report has already been received by other channels such as earnings call or company press releases and incorporated into the price.

A negative significant correlation is further noted between the abnormal trading volume (AVOL) and leverage (LEV) in all three samples, and between cumulative abnormal returns (CAR) and leverage in samples H2 and H3, which may be explained by the fact that higher leverage indicates a higher risk level, deterring trading activity.

Overall, no excessively high correlations in terms of magnitude are noted which would indicate that the models are not appropriate.

Table 6. Pairwise Correlations H1 Sample

Variables	(car_w5)	(avol_w5)	(size_w5)	(age)	(sgr_w10)	(roa_w10)	(mtb_w10)	(lev_w5)	(replag)
car_w5	1.000								
avol_w5	0.040	1.000							
size_w5	0.063*	0.157***	1.000						
age	0.026	0.010	0.204***	1.000					
sgr_w10	0.036	0.040	0.016	0.010	1.000				
roa_w10	0.072*	0.101***	0.353***	0.110***	0.297***	1.000			
mtb_w10	-0.033	0.000	0.298***	-0.030	0.069*	0.213***	1.000		
lev_w5	-0.050	-0.089**	0.155***	0.025	-0.045	-0.134***	0.054	1.000	
replag	-0.097**	-0.238***	-0.606***	-0.104***	0.025	-0.195***	-0.173***	-0.069*	1.000

*** p<0.01, ** p<0.05, * p<0.1

Refer to **Appendix 1** for variable definitions

Table 7. Pairwise Correlations H2 Sample

Variables	(car_w10)	(avol_w5)	(numkam)	(lenkam)	(numgenkam)	(numspeckam)	(lenspeckam)	(size_w5)	(age)	(sgr_w10)	(roa_w10)	(mtb_w10)	(lev_w5)	(replag)
car_w10	1.000													
avol_w5	0.057	1.000												
numkam	0.069	-0.002	1.000											
lenkam	0.066*	-0.102**	0.675***	1.000										
numgenkam	0.061	0.087*	0.674***	0.472***	1.000									
numspeckam	0.026	-0.097**	0.590***	0.379***	-0.199***	1.000								
lenspeckam	0.056	-0.137***	0.423***	0.355***	-0.233***	0.815***	1.000							
size_w5	0.092**	-0.017	0.260***	0.345***	0.199***	0.127***	0.109**	1.000						
age	0.073	-0.008	0.120**	0.016	0.140***	0.006	0.052	-0.012	1.000					
sgr_w10	0.043	0.051	-0.090*	-0.017	-0.041	-0.074	-0.051	0.035	-0.138***	1.000				
roa_w10	0.135***	0.106**	-0.125***	-0.060	0.003	-0.169***	-0.197***	0.300***	0.132***	0.181***	1.000			
mtb_w10	-0.076*	-0.115**	-0.139***	-0.026	-0.148***	-0.022	0.024	0.207***	-0.095**	0.200***	0.164***	1.000		
lev_w5	-0.116**	-0.165***	0.122***	0.202***	-0.129***	0.303***	0.265***	0.194***	-0.187***	-0.045	-0.178***	0.053	1.000	
replag	-0.133***	-0.199***	-0.107**	-0.165***	-0.162***	0.035	0.021	-0.527***	-0.135***	0.047	-0.228***	0.008	0.032	1.000

*** p<0.01, ** p<0.05, * p<0.1

Table 8. Pairwise Correlations H3 Sample

Variables	(car_w10)	(avol_w5)	(numnewkam)	(numexclkam)	(numprevkam)	(size_w5)	(age)	(sgr_w10)	(roa_w10)	(mtb_w10)	(lev_w5)	(replag)
car_w10	1.000											
avol_w5	0.035	1.000										
numnewkam	0.049	-0.018	1.000									
numexclkam	-0.028	-0.009	0.372***	1.000								
numprevkam	0.081*	0.010	-0.219***	-0.253***	1.000							
size_w5	0.096*	0.044	0.059	0.085*	0.249***	1.000						
age	0.068	-0.001	0.058	0.015	0.148***	-0.004	1.000					
sgr_w10	0.042	0.046	-0.053	0.021	-0.082	0.050	-0.121**	1.000				
roa_w10	0.141***	0.117**	-0.105**	0.031	-0.022	0.319***	0.150***	0.225***	1.000			
mtb_w10	-0.064	-0.075	-0.026	0.029	-0.172***	0.212***	-0.080	0.184***	0.190***	1.000		
lev_w5	-0.112**	-0.181***	0.073	0.077	0.054	0.174***	-0.205***	-0.083*	-0.195***	0.078	1.000	
replag	-0.104**	-0.236***	0.080	0.005	-0.193***	-0.538***	-0.125**	0.049	-0.234***	-0.030	0.042	1.000

*** p<0.01, ** p<0.05, * p<0.1

Refer to **Appendix 1** for variable definitions

7.2 Multivariate analysis

7.2.1 Hypothesis 1

H₁: The market reacts positively to the extended audit report (EAR).

Hypothesis 1 examines how the market reacts to the issuance of the extended audit report, where the market reaction is proxied by the cumulative abnormal return (CAR) and the abnormal trading volume (AVOL) around the date of the audit report issuance (-1, +3 days).

The results illustrated in Table 8 includes control variables related to firm size and performance, financial reporting, and auditor-client relationship, in addition to firm and year fixed effects, which are able to reliably predict the dependent variables, considering the p-value associated with the F test is well below 0.05. Based on the R-square value, the AVOL model shows better goodness of fit than the CAR model – 37.2% compared to 18.3% of variance in the market reaction variable explained by the model.

The regression results indicate a statistically significant coefficient (at 10% confidence level) for the explanatory variable in the CAR model, which represents a decrease in the cumulative abnormal returns when the firm issues an extended audit report. Contrary to the predicted direction of the market reaction, the regression shows that the market reacts negatively to the extended audit report: when EAR=1, the cumulative abnormal return value decreases with -0.033, which would lead to a loss to investors. Accordingly, investors interpret the extended audit report (EAR) as a negative signal, potentially identifying previously unknown risks disclosed within the KAMs. It was noted that the model has failed Breusch-Pagan heteroskedasticity test, as such robust standard errors were added, which caused the coefficient for EAR to lose statistical significance. A significant negative coefficient persists in the control variables leverage (LEV) and market-to-book ratio (MTB). This can be explained by the fact that firms with higher leverages and highly overvalued firms may be perceived as riskier by the market, as such leading to abnormal losses. On the other side, the years since incorporation (AGE) is associated with a significant positive coefficient for CAR, implying that the market is better informed about older companies.

For the AVOL model, the coefficient associated with the issuance of the extended audit report (EAR) is positive and maintains its significance at 5% confidence level after introducing robust standard errors. These results imply that the extended audit report contains informational value for investors which affects the trading activity. Control variables related to sales growth (SGR)

and qualified audit opinion (QOPINION) show significant positive coefficients, implying that these characteristics are perceived by the market as holding informative content.

Next, the coefficient for POSTEA – dummy variable for issuance of the audit report after the earnings announcements – is negative and significant at 1% confidence level. This indicates that the earnings release may be a confounding event, as higher abnormal trading volumes are noted when the audit report is issued in the same window as the earnings announcement. In order to attempt to separate the confounding event of the earnings announcement from and isolate the market reaction specific to the issuance of the extended audit report, the AVOL model has been applied again for two sub-samples: (1) EAR issued within 3 days of the earnings announcement (POSTEA=0) and (2) EAR issues more than 3 days later than the earnings announcement (POSTEA=1). The results of this regression are summarized in Table 9. When separating the two sub-samples, the coefficient for EAR remains significant at 10% confidence level, indicating that the extended audit report does contain information content for investor when isolating the earnings announcement. The results also indicate that within the earnings announcement window, a large portion of the abnormal trading volume is explained by other factors that the extended audit report – such as the earnings and financial performance analysis presented by a firm in an earnings call or press conference well in advance of obtaining audited figures.

Table 9. Multivariate analysis - H1 - Cumulative abnormal returns and abnormal trading volume

Model:	CAR Model				AVOL Model			
	(7) $CAR_{W5_{ijt}} = \alpha + \beta_1 (EAR_{it}) + Controls$				(7) $AVOL_{W5_{ijt}} = \alpha + \beta_1 (EAR_{it}) + Controls$			
Variable:	(1) Coefficient	(2) P-value	(3) Coefficient	(4) P-value	(5) Coefficient	(6) P-value	(7) Coefficient	(8) P-value
EAR	-0.033*	0.073	-0.033	0.109	0.740***	0.007	0.740**	0.019
SIZE_W5	-0.002	0.612	-0.002	0.595	-0.064	0.214	-0.064	0.233
LEV_W5	-0.059**	0.017	-0.059**	0.047	-0.467	0.111	-0.467	0.171
SGR_W10	0.000	0.997	0.000	0.997	0.418**	0.040	0.418**	0.044
ROA_W10	0.080	0.233	0.080	0.272	-0.254	0.754	-0.254	0.782
MTB_W10	-0.005**	0.038	-0.005*	0.072	-0.012	0.702	-0.012	0.691
AGE	0.112*	0.078	0.112*	0.057	1.146	0.148	1.146	0.311
LOSS	0.008	0.329	0.008	0.388	-0.119	0.254	-0.119	0.270
REPLAG	-0.014	0.183	-0.014	0.159	-0.184	0.130	-0.184	0.151
POSTEA	0.000	0.967	0.000	0.966	-0.243***	0.000	-0.243***	0.000
BIG4	0.001	0.956	0.001	0.954	0.247	0.066	0.247	0.151
QOPINION	0.022	0.496	0.022	0.443	1.001**	0.018	1.001*	0.089
Constant	-0.227	0.214	-0.227	0.163	-1.740	0.458	-1.740	0.625
N	720.000		720.000		701.000		701.000	
R ²	0.183		0.183		0.372		0.372	
Adjusted R ²	0.072		0.072		0.284		0.284	
F-test	1.653		2.160		4.224		29.710	
Prob > F	0.000		0.000		0.000		0.000	
Firm fixed effects	YES		YES		YES		YES	
Year fixed effects	YES		YES		YES		YES	
Robust std. errors	NO		YES		NO		YES	

For variable definitions, refer to **Appendix 1**.

This table includes the multivariate analysis for Hypothesis 1, using the two proxies CAR and AVOL winsorized at 5% as indicated with the equations. Columns (1), (3), (5) and (7) contain the regression coefficient for the independent and control variables. Columns (2), (4), (6) and (8) contain the p-values of two-tailed tests. Firm and year fixed effects are included in all regressions. Additionally, columns (3), (4) and (7), (8) present the models with robust standard errors included to address any heteroskedasticity identified.

Statistical significance indicates as follows: *** p<0.01, ** p<0.05, * p<0.1.

Table 10. Multivariate analysis - H1 - Earnings Announcement Split - Abnormal trading volume

Model:	AVOL Model	
	(7) $AVOL_W5_{iit} = \alpha + \beta_1 (EAR_{it}) + Controls$	
Variable:	(1) POSTEA = 0	(2) POSTEA = 1
EAR	0.803**	0.449*
SIZE_W5	-0.010	-0.143
LEV_W5	0.278	-1.153**
SGR_W10	0.540*	0.397
ROA_W10	0.530	-1.751
MTB_W10	-0.019	-0.031
LOSS	-0.050	-0.094
REPLAG	0.229	0.037
BIG4	0.197	0.249
QOPINION	0.771***	1.421***
Constant	-0.932	2.632
N	344	357
R ²	0.248	0.195
Adjusted R ²	0.199	0.147
F-test	0.000	0.000
Firm fixed effects	YES	YES
Year fixed effects	YES	YES
Robust std. errors	YES	YES

For variable definitions, refer to **Appendix 1**.

This table includes an additional analysis for Hypothesis 1, using the proxy AVOL winsorized at 5%. Columns (1) and (2) contain the regression coefficient for the independent and control variables. The original H1 sample was separated into two subgroups: (1) **POSTEA=0** firms where the audit report was published within 3 days of the earnings announcement, attempting to separate the effects of the confounding event and (2) **POSTEA=1** firms where the audit report was published more than three days after the earnings announcement. The regression is run again on these two subgroups, with results corresponding to the two columns. Firm and year fixed effects, as well as robust standard errors are included in all regressions. Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

7.2.2 Hypothesis 2

Hypotheses 2A to 2D examine the effect of various characteristics and content of the key audit matters included in the extended audit reports issued in the period from 2014 to 2020 on the market as measured by cumulative abnormal returns and abnormal trading volumes – results are summarized in Table 10. All regression models include firm and year fixed effects which produce the most appropriate model to explain the dependent variables – which is evidenced in the p-value of the F-test and the R-squared values. Similarly to hypothesis 1, the AVOL model is showing a better fit compared to the CAR model, potentially indicating that the abnormal trading volume captures more accurately the information content of the independent variables. Overall, the models produce highly insignificant results, indicating that the contents of the extended audit report carry little new information for investors.

H_{2A}: The market reacts negatively to the number of KAMs in the audit report.

H_{2B}: The market reacts negatively to the length of KAMs in the audit report.

First, the reaction to the number of KAMs included in the extended audit reported (NUMKAM) is investigated, where the model produces highly insignificant coefficients for both market reaction proxies. The coefficient sign is positive, in contrast to the prediction in hypothesis *H_{2A}*, which assumes that investors may perceive a higher number of disclosed KAMs as an indicator of higher risk associated with the company or potential future misstatements. The positive coefficient can be explained the narrowing of the information asymmetry as a result of more disclosures. The same justification applies to the coefficient noted in the results of the model for hypothesis *H_{2B}*, which examined the effect for the length of KAMs (LENKAM) measured with cumulative abnormal returns.

H_{2C}: The market reacts stronger to a specific KAM as opposed to a generic KAM.

Next, KAMs collected from extended audit reports have been classified into two categories: generic and specific. Generic KAMs are pervasive for all firms and generally associated with higher risk areas, such as revenue recognition or management estimates. Specific KAMs indicate acquisitions, litigations, restructuring project and other explicit events directly attributable to a firm. Accordingly, the hypothesis *H_{2C}* predicts that the market reacts stronger to a specific KAM as opposed to a generic KAM. The model shows insignificant coefficients for both variables – number of generic KAMs (NUMGENKAM) and number of specific KAMs (NUMSPECKAM). The positive sign of the coefficient indicates that specific KAMs contain

new information which may reduce information asymmetry. The p-value for the specific KAM coefficient is lower than the p-value for the generic KAM coefficient, which is consistent with the hypothesis.

***H_{2D}**: The market reacts negatively to a lengthier specific KAM.*

Lastly, hypothesis *H_{2D}* investigates the market reaction to the length of specific KAMs with the expectation that the market will react negatively to a lengthier specific KAM. Again, the p-value of the coefficients indicates statistically insignificant results. One observation is that the interaction term in the AVOL model improves the fit of the model and increases the significance of the coefficient for the number of specific KAMs (NUMSPECKAM), however it remains insignificant.

Looking into the quantity and content of the KAMs from the extended audit report, very little evidence is found that the market reaction is affected by the additional disclosures in the extended audit report. This is explained by the fact that the key audit matters do not contain any new information for the investors and any risks disclosed by the auditors have already been assimilated into the share price from other sources, such as company's own disclosures in the director's reports, earnings calls or notes to the financial statements. In addition, the audit standard ISA 701 explains that key audit matters are items already discussed to the management and those charged with governance (IAASB, 2015), as such do not represent surprise disclosures. Further, only an unqualified audit report may include a KAMs section, which indicates that all risks disclosed in the extended audit report have been subjected to audit procedures and have not resulted in any material misstatements. These factors provide further explanation for the non-significant regression results for the second hypothesis. The findings also corroborate with the results noted in the UK sample of firms after the introduction of the new audit reporting documented by Gutierrez et al. (2018) who examine information content in EAR disclosures for listed companies on the London Stock Exchange.

Table 11. Multivariate analysis - H2 - Cumulative abnormal returns and abnormal trading volume

Column & Corresponding Equation:	Col. (1): (8) $CAR_{W10_{ijt}} = \alpha + \beta_1 (NumKAM_{it}) + Controls$ Col. (2): (9) $CAR_{W10_{ijt}} = \alpha + \beta_1 (LenKAM_{it}) + Controls$ Col. (3): (10) $CAR_{W10_{ijt}} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (NumGenKAM_{it}) + Controls$ Col. (4): (11) $CAR_{W10_{ijt}} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (LenSpecKAM_{it}) + \beta_3 (NumSpecKAM_{it}) * (LenSpecKAM_{it}) + Controls$				Col. (5): (8) $AVOL_{W5_{ijt}} = \alpha + \beta_1 (NumKAM_{it}) + Controls$ Col. (6): (9) $AVOL_{W5_{ijt}} = \alpha + \beta_1 (LenKAM_{it}) + Controls$ Col. (7): (10) $AVOL_{W5_{ijt}} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (NumGenKAM_{it}) + Controls$ Col. (8): (11) $AVOL_{W5_{ijt}} = \alpha + \beta_1 (NumSpecKAM_{it}) + \beta_2 (LenSpecKAM_{it}) + \beta_3 (NumSpecKAM_{it}) * (LenSpecKAM_{it}) + Controls$			
Variable	(1) H2A. CAR	(2) H2B. CAR	(3) H2C. CAR	(4) H2D. CAR	(5) H2A. AVOL	(6) H2B. AVOL	(7) H2C. AVOL	(8) H2D. AVOL
NUMKAM	0.0023				0.0101			
<i>p-value</i>	0.4569				0.7432			
LENKAM		0.0049				-0.0238		
<i>p-value</i>		0.5052				0.7537		
NUMGENKAM			-0.0003				0.0110	
<i>p-value</i>			0.9506				0.8216	
NUMSPECKAM			0.0039				0.0096	
<i>p-value</i>			0.3011				0.7939	
NUMSPECKAM				0.0223				-0.5573
<i>p-value</i>				0.6223				0.2654
LENSPECKAM				0.0004				0.0056
<i>p-value</i>				0.8235				0.7597
NUMxLEN SPECKAM				-0.0023				0.0649
<i>p-value</i>				0.638				0.2347
SIZE_W5	-0.01	-0.011	-0.01	-0.01	-0.003	-0.006	-0.003	-0.008
SGR_W10	0.028	0.028	0.028	0.026	0.207	0.202	0.207	0.247
ROA_W10	0.219**	0.215**	0.218**	0.227**	1.045	1.012	1.046	0.912
MTB_W10	-0.008***	-0.008***	-0.008***	-0.008***	0.01	0.008	0.01	0.015
LEV_W5	-0.073**	-0.074**	-0.076**	-0.077**	-0.213	-0.195	-0.212	-0.198
AGE	-0.016	-0.003	-0.013	-0.016	-0.119	-0.064	-0.115	-0.018
LOSS	0.023*	0.023*	0.023*	0.023*	-0.019	-0.018	-0.019	-0.029
REPLAG	-0.026	-0.026	-0.027	-0.027	-0.2	-0.187	-0.2	-0.194
POSTEA	0	0	0	-0.001	-0.148	-0.148	-0.148	-0.148
BIG4	-0.014	-0.015	-0.014	-0.014	0.157	0.162	0.157	0.154
Constant	0.483*	0.414	0.469*	0.475*	1.636	1.686	0	1.446
N	462	462	462	462	455	455	455	455
R ²	0.299	0.299	0.301	0.302	0.483	0.483	0.483	0.485

Adjusted R²	0.112	0.112	0.112	0.111	0.346	0.346	0.344	0.345
F-test	1.602	6.230	5.510	5.130	3.531	5.030	3.484	3.467
Prob > F	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Robust std. errors	YES	YES	YES	YES	YES	YES	YES	YES

For variable definitions, refer to **Appendix 1**.

This table includes the multivariate analysis for Hypothesis 2A-D, using the two proxies CAR and AVOL winsorized at 10% and 5% respectively, as indicated with the equations. Columns (1) to (4) contain the regression results for hypothesis 2A-D using CAR_W10, and columns (5) to (8) contain the regression results for hypothesis 2A-D using AVOL_W5. Below each regression coefficient for the independent variables, the p-values of two-tailed tests are included (in italics). These are omitted from the control variables for brevity purposes, where significance is only indicated with asterisks. Firm and year fixed effects, as well as robust standard errors are included in all regressions.

Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

7.2.3 Hypothesis 3

Hypotheses 3A and 3B examine the market effect coming from changes in the reported KAMs. Since the introduction of the audit report regulation in 2014, a considerable dataset of KAMs can be collected spanning from 2014 to 2020. With the exclusion of the first year of implementation 2014, an average of 5 years of observations per firm are obtained, allowing the investigation of KAMs reported over the years for each firm. The expectation is that generally, the market would no longer react to a KAM which has been previously disclosed – leading to an insignificant coefficient. However, a new KAM is expected to lead to a market reaction as it may contain new information. The latter effect is expected to be further strengthened by the interaction with auditor change. Results of the regression model for hypotheses H_{3A} and H_{3B} are summarized in Table 11. All regression models include firm and year fixed effects which produce the most appropriate model to explain the dependent variables – which is evidenced in the p-value of the F-test and the R-squared values. Similar to the results noted for hypothesis 2, the models produce highly insignificant results, indicating that year-to-year changes noted in the contents of extended audit reports are not informative to investors.

H_{3A} : The market reacts to a change in the KAMs disclosed in the audit report.

Both the CAR and the AVOL models for H_{3A} are showing non-significant coefficients for the independent variables related to changes in disclosed KAMs. In the CAR model, new KAMs (NUMNEWKAM) show the strongest effect, however still remaining insignificant. In the AVOL model, the number of no longer reported KAMs (NUMEXCLKAM) show the strongest effect. Directionally, the coefficient sign for new KAMs (NUMNEWKAM) is positive – potentially indicating some information content contained in new KAMs. On the other side, the coefficient for the number of no longer reported KAMs (NUMEXCLKAM) has a negative sign, which may imply that investors perceive the excluded KAMs as a reduction in disclosed information, leading to abnormal losses and low trading volumes.

H_{3B} : The market reacts to changes in KAMs disclosed in the audit report due to auditor change.

When adding the interaction term to the model for testing H_{3B} , no notable changes in the significance of results is observed. Auditor change by itself (AUDITORCHANGE) does not lead to a market reaction. It is probable that auditor change is expected by investors, due to audit rotation regulation for PIE firms. In addition, the firms in the H3 sample are largely audited by Big4 auditors (92%), who have comparable audit quality levels. Furthermore,

adding the variable *AUDITORCHANGE* lessens the effect of the new KAMs noted in the regression model for H_{3A} . This can be explained by the fact that the market does know how to price information contained in new KAMs disclosed by a new auditor.

Little evidence is found that market reaction is affected by the changes in the KAMs disclosed year over year. These results further corroborate with other content analyses on Dutch KAMs (Woudenberg, et al., 2021) who find that the similar risks are disclosed across firms and years. Similar reasoning to hypothesis 2 explains the lack of significant results. In addition, during data collection, it was noted that most changes in KAMs follow from significant transactions (classified as specific KAMs) related to business combinations and acquisitions of components with another large category being litigations and claims and financing covenants. These are usually reported in year t and no longer reported in the following year. Considering the nature of these events – it is very likely that management has previously announced them with the means of a press release or as an explanatory note in the financial statements. This would leave little incremental information to be obtained from the KAM in the extended audit report. Lennox et al. (2021) also find that KAMs lack incremental information (based on a sample of UK firms) and explain that this is due to most risks already being known by investors before the disclosure in the extended audit report.

Table 12. Multivariate analysis - H3 - Cumulative abnormal returns and abnormal trading volume

Column & Corresponding Equation:	Col. (1): (12) $CAR_W10_{ijt} = \alpha + \beta_1(NumNewKAM_{it}) + \beta_2(NumPrevKAM_{it}) + \beta_3(NumExclKAM_{it}) + Controls$		Col. (1): (12) $AVOL_W5_{ijt} = \alpha + \beta_1(NumNewKAM_{it}) + \beta_2(NumPrevKAM_{it}) + \beta_3(NumExclKAM_{it}) + Controls$	
	Col. (2): (13) $CAR_W10_{ijt} = \alpha + \beta_1(NumNewKAM_{it}) + \beta_2(AuditorChange_{it}) + \beta_3(NumNewKAM_{it}) * (AuditorChange_{it}) + Controls$		Col. (2): (13) $AVOL_W5_{ijt} = \alpha + \beta_1(NumNewKAM_{it}) + \beta_2(AuditorChange_{it}) + \beta_3(NumNewKAM_{it}) * (AuditorChange_{it}) + Controls$	
Variable	(1) H3A. CAR	(2) H3B. CAR	(3) H3A. AVOL	(4) H3B. AVOL
NUMNEWKAM	0.004		0.026	
<i>p-value</i>	0.357		0.536	
NUMEXCLKAM	-0.002		-0.037	
<i>p-value</i>	0.570		0.339	
NUMPREVKAM	0.003		-0.011	
<i>p-value</i>	0.566		0.831	
NUMNEWKAM		0.001		-0.004
<i>p-value</i>		0.830		0.943
AUDITORCHANGE		0.001		0.036
<i>p-value</i>		0.965		0.808
NUMNEWKAMxAUDITCHANGE		0.002		0.055
<i>p-value</i>		0.735		0.462
SIZE_W5	-0.015*	-0.015*	-0.055	-0.045
LEV_W5	-0.083**	-0.085**	-0.618	-0.593
SGR_W10	0.022	0.023	0.064	0.100
ROA_W10	0.327**	0.308**	0.355	0.125
MTB_W10	-0.005*	-0.006*	0.059*	0.056*
AGE	0.289***	0.299***	0.683	0.741
LOSS	0.033**	0.031**	-0.049	-0.060
REPLAG	-0.029	-0.027	-0.165	-0.129
POSTEA	-0.004	-0.004	0.022	0.021
BIG4	0.003	0.001	0.177	0.101
Constant	-0.497	-0.526	-0.664	-1.256
N	387	382	387	382
R ²	0.320	0.481	0.318	0.482

Adjusted R²	0.104	0.315	0.101	0.317
F-test	3.460	2.906	3.459	2.919
Prob > F	0.000	0.000	0.000	0.000
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Robust std. errors	YES	YES	YES	YES

For variable definitions, refer to **Appendix 1**.

This table includes the multivariate analysis for Hypothesis 3A-B, using the two proxies CAR and AVOL winsorized at 10% and 5% respectively, as indicated with the equations. Columns (1) and (2) contain the regression results for hypothesis 3A-B using CAR_W10, and columns (3) and (4) contain the regression results for hypothesis 3A-B using AVOL_W5. Below each regression coefficient for the independent variables, the p-values of two-tailed tests are included (in italics). These are omitted from the control variables for brevity purposes, where significance is only indicated with asterisks. Firm and year fixed effects, as well as robust standard errors are included in all regressions.

Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

8. Conclusion

This study examines the reaction of the market to the extended audit report of public Dutch firms. Starting from 2014, the Dutch ISA 701N came into effect for all publicly traded firms in the Netherlands. This standard precedes the ISA 701 issued by IAASB and similarly aims to respond to concerns from the public by addressing the gap between the information included in the audit report and the users' information needs and enhancing the value and relevance of the audit report. This is achieved by the addition of disclosures of the audit approach, materiality, and significant risk areas to the audit report. The key audit matters are the key part of the extended audit report where the content is at the discretion of the auditor. The objective of this paper is to study whether the use of the extended audit report has an effect on investor's reaction on the market, measured on the basis of the cumulative abnormal returns and abnormal trading volumes in the five-day event window around the publishing of the annual report together with the extended audit report. In addition, the market reaction to the content of disclosures in the extended audit report was investigated, particularly the length and number of the KAMs, the generic and specific KAMs, as well as the reporting pattern of – such as new KAMs and KAMs which are no longer reported.

The results indicate that publishing of the extended audit report (compared to the traditional audit report) does lead to a significant market reaction, measured with the abnormal trading volume proxy. The finding also holds for the sample of firms where the publishing of the annual report and audit report occurred after the earnings announcement. When it comes to different aspects of content disclosed within KAMs, no evidence is found that these have any effect on the investor reaction captured by the two proxies. The lack of evidence primarily signals that KAMs do not contain new information which warrants investment represented in both price returns and trading volumes. This can be attributed to two factors: (1) the KAMs are often reported repeatedly year after year, as such presenting no surprise to the investors, and (2) the information disclosed in the KAMs is already known to investors from other company disclosures such as quarterly reports, press releases and earnings calls.

This study adds to the literature over the new audit reporting in the Dutch setting. While several descriptive studies and white papers have been released to examine the content of the disclosure included in the extended audit reports issued by Dutch public firms, their effect on the market has not yet been examined. The study also adds up to the regulatory body discussion over audit reporting, which is pertinent considering the potentially expanding responsibilities of the

auditor over non-financial information such as assurance over sustainability reports. In addition, compared to similar studies in the UK setting, this paper extends the sample period up to 2020 which allows the examination of long-term effects of issuing extended audit reports, as well as provides a different institutional and legislative setting.

One caveat to this study comes from the proxies representing the market reaction. Cumulative abnormal returns and abnormal trading volumes in an event study setting are widely used in financial accounting literature to measure the informativeness of disclosures. However it is challenging to separate the confounding effects of the other disclosures in the annual report from the specific disclosures in the KAMs included in the extended annual report. In addition, another potential limitation is the nature of firms included in the sample used in this study: publicly traded firms operate in a rich information environment where new information is frequently released in financial news publications, press releases, earnings calls and quarterly reports. This leaves very little incremental information to be potentially disclosed in the extended audit report.

In future research, these limitations may be tackled by applying additional analyses of firm disclosures in other channels as mentioned above to isolate the KAMs which contain previously undisclosed information. Other content analyses could be applied to the disclosed KAMs to identify positive and negative signals and further examine the market response to these. Moreover, the effect of the extended audit regulation can be examined on the quality of the audit and subsequently on the identification of financial misstatement risk. Since little evidence was found that KAMs contain new information for the investors which can be incorporated into share prices or investment activity, experimental settings can assist in examining how stakeholders like investors, but also lenders and management perceive the information disclosed within the KAMs in the extended audit report.

Appendix 1. Variable Definitions

Variable	Description
Dependent Variables	
CAR	Five-day cumulative abnormal return over the period [-1, 3] surrounding the date of publishing annual reports, including the extended audit report, for company <i>i</i> in year <i>t</i>
CAR_W10	CAR winsorized at 10%
AVOL	Average trading volume during the event period (-1 day to +3 days from the date of publishing annual report including extended audit reports), scaled by the mean trading volume in the estimation period for company <i>i</i> in year <i>t</i>
AVOL_W5	AVOL winsorized at 5%
Independent Variables	
EAR	Dummy variable where 0 signifies old format audit report for company <i>i</i> in year <i>t</i> and 1 if an extended audit report was published
NUMKAM	Number of KAMs disclosed in the extended audit report for company <i>i</i> in year <i>t</i>
LENKAM	Length of KAMs, calculated as the natural logarithm of the total number of characters in the KAM section of the extended audit report for company <i>i</i> in year <i>t</i>
NUMGENKAM	Number of generic KAMs reported by company <i>i</i> in year <i>t</i> . Classification methodology of generic and specific KAMs is included in Chapter 5.2
NUMSPECKAM	Number of specific KAMs reported by company <i>i</i> in year <i>t</i> . Classification methodology of generic and specific KAMs is included in Chapter 5.2
LENSPECKAM	Length of specific KAMs reported by company <i>i</i> in year <i>t</i> , measured as the natural logarithm of the total number of characters in all specific KAMs Classification methodology of generic and specific KAMs is included in Chapter 5.2.
NUMNEWKAM	Number of new reported KAMs by company <i>i</i> in year <i>t</i>
NUMPREVKAM	Number of KAMs previously reported by company <i>i</i> in year <i>t</i>
NUMEXCLKAM	Number of KAMs no longer reported by company <i>i</i> in year <i>t</i>
AUDITORCHANGE	Dummy variable equal to '1' in the year of audit change and '0' otherwise for company <i>i</i> in year <i>t</i>
Control Variables	
SIZE	Natural logarithm of market value of the equity for company <i>i</i> in year <i>t</i>
SIZE_W5	SIZE winsorized at 5%
AGE	Natural logarithm of number of years since the company's incorporation

SGR	Sales growth measured for company <i>i</i> as sales in year <i>t</i> minus sales in year <i>t-1</i> , scaled by sales in year <i>t-1</i>
SGR_W10	SGR winsorized at 10%
LOSS	Dummy variable equal to 1 if negative net income is recorded in year <i>t</i> , 0 otherwise, for company <i>i</i>
ROA	Return on assets measured as the net income before extraordinary items in year <i>t</i> , scaled by total assets at the end of year <i>t</i> for company <i>i</i>
ROA_W10	ROA winsorized at 10%
MTB	Market to book ratio computed as market value of equity at the end of year <i>t</i> scaled by the book value of equity at the end of year <i>t</i> for company <i>i</i>
MTB_W10	MTB winsorized at 10%
LEV	Leverage computed as the long-term debt scaled by total assets at the end of year <i>t</i> for company <i>i</i>
LEV_W5	LEV winsorized at 5%
POSTEA	Dummy variable with value of 1 signifying the audit report is released more than 3 days after the earnings announcement and 0 otherwise).
REPLAG	Natural logarithm of the number of days between the end of the fiscal year and the issue of the audit report for company <i>i</i> in year <i>t</i>
BIG4	Dummy variable taking the value of 1 in case one of the big4 firms is the auditor and 0 otherwise for company <i>i</i> in year <i>t</i>
QOPINION	Dummy variable with value of 0 if the audit opinion is unqualified and 1 otherwise for company <i>i</i> in year <i>t</i>

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